- Specifications

Front Suspension

Item		Specification
Suspension type		MacPherson Strut
Shock absorber	Type	Gas

Rear Suspension

Item		Specification
Suspension type		Multi link
Shock absorber	Type	Gas

Wheel & Tire

Item		Specification	
		Front	Rear
Aluminum	18 inch	7.5 J x 18	
	20 inch	7.5J x 20	
Tire	18 inch	245 / 60 R18	
	20 inch	245 / 50 R20	
Spare tire		T155/90 R18	
Tire pressure	245 / 60 R18	240 (35)	240 (35)
	245 / 50 R20	240 (35)	240 (35)
	T155/90 R18	420 (60)	420 (60)

Wheel Alignment

Item		Specification	
		Front	Rear
Toe-in	Individual	0.05˚ ± 0.1˚	0.1˚ ± 0.1˚
	Total	0.1˚ ± 0.2˚	0.2˚ ± 0.2˚
Camber angle		-0.5˚ ± 0.5˚	-1.0˚ ± 0.5˚
Caster angle		4.26˚ ± 0.5˚	-
King-pin angle		13.33˚ ± 0.5˚	-
Ride height		450.5 ± 10 mm (17.7362 ± 0.3937 in.)	470 ± 10 mm (18.5039 ± 0.3937 in.)

Tightening Torque

Front Suspension

Item	Tightening torque (kgf.m)		
	N.m	kgf.m	lb-ft
Tire wheel Hub nuts	107.9 - 127.5	11.0 - 13.0	79.6 - 94.0

Strut assembly to knuckle	156.9 - 176.5	16.0 - 18.0	115.7 - 130.2
Strut assembly lock nut	44.1 - 58.8	4.5 - 6.0	32.5 - 43.4
Lower arm to sub frame (Front)	117.7 - 137.3	12.0 - 14.0	86.8 - 101.3
Lower arm to sub frame (Rear)	156.9 - 176.5	16.0 - 18.0	115.7 - 130.2
Lower arm to knuckle	98.1 - 117.7	10.0 -12.0	72.3 - 86.8
Stabilizer link to strut assembly	98.1 - 117.7	10.0 -12.0	72.3 - 86.8
Stabilizer bar to stabilizer link	98.1 - 117.7	10.0 - 12.0	72.3 - 86.8
Stabilizer bar to sub frame	49.0 - 63.7	5.0 - 6.5	36.2 - 47.0
Roll rod bolt & nut	107.9 - 127.5	11.0 - 13.0	79.6 - 94.0
Tie rod end nut	23.5 - 33.3	2.4 - 3.4	17.4 - 24.6
Universal joint to pinion of steering gear	32.4 - 37.3	3.3 - 3.8	23.9 - 27.5
Steering gear box to sub frame	88.3 - 107.9	9.0 - 11.0	65.1 - 79.6
Sub frame mounting bolts (Front)	156.9 - 176.5	16.0 - 18.0	115.7 - 130.2
Sub frame mounting bolts (Rear)	44.1 - 58.8	4.5 - 6.0	32.5 - 43.4
Sub frame mounting bolts	(A) 44.1 - 58.8	4.5 - 6.0	32.5 - 43.4
	(B) 156.9 - 176.5	16.0 - 18.0	115.7 - 130.2
Upper roll rod bracket bolt	(A) 107.9 - 127.5	11.0 - 13.0	79.6 - 94.0
	(B) 49.0 - 63.7	5.0 - 6.5	36.2 - 47.0

Rear Suspension

Item		Tightening torque (kgf.m)		
		N.m	Kgf.m	lb-ft
Tire wheel Hub nuts		107.9 - 127.5	11.0 - 13.0	79.6 - 94.0
Trailing arm to body		98.1 - 117.7	10.0 -12.0	72.3 - 86.8
Trailing arm to knuckle		44.1 - 53.9	4.5 - 5.5	32.5 - 39.8
Assist arm to sub frame		137.3 - 156.9	14.0 -16.0	101.3 - 115.7
Assist arm to knuckle	2WD	44.1 - 53.9	4.5 - 5.5	32.5 - 39.8
	4WD	137.3 - 156.9	14.0 -16.0	101.3 - 115.7
Lower arm to knuckle		137.3 - 156.9	14.0 -16.0	101.3 - 115.7
Upper arm to sub frame		98.1 - 117.7	10.0 -12.0	72.3 - 86.8
Upper arm to knuckle	2WD	137.3 - 156.9	14.0 -16.0	101.3 - 115.7
	4WD	98.1 - 117.7	10.0 -12.0	72.3 - 86.8
Shock absorber cover to frame	2WD	88.3 - 107.9	9.0 - 11.0	65.1 - 79.6
Shock absorber to frame		137.3 - 156.9	14.0 -16.0	101.3 - 115.7
Shock absorber to knuckle		137.3 - 156.9	14.0 -16.0	101.3 - 115.7
Stabilizer bar to stabilizer link		98.1 - 117.7	10.0 -12.0	72.3 - 86.8
Stabilizer bar to sub frame		44.1 - 53.9	4.5 - 5.5	32.5 - 39.8
Sub frame mounting bolt & nut		176.5 - 215.7	18.0 - 22.0	130.2 - 159.1

- Special Service Tools

Tool (Number and Name)	Illustration	Use
0K546-F6100 Shock absorber lock nut removal tool		Used for remove the front shock absorber lock nut

09546-S1100 Shock absorber lock nut removal tool		Used for remove the rear shock absorber lock nut
09545-AL100 Front lower arm G bushing replacement tool		Used for replacement of the front lower arm G bushing

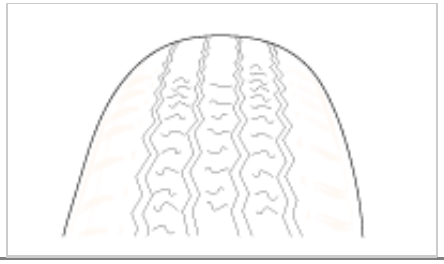
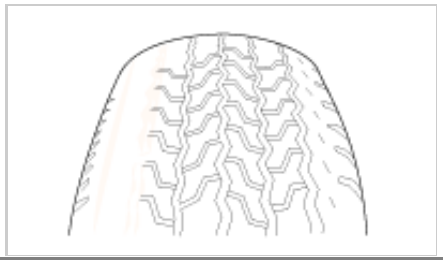
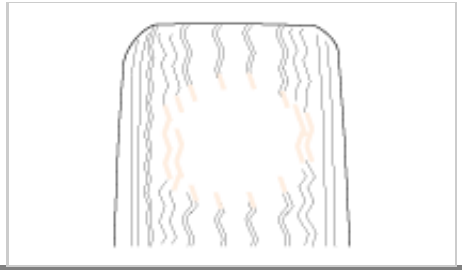
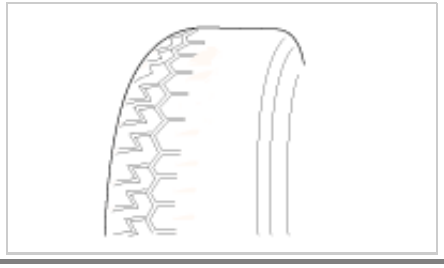
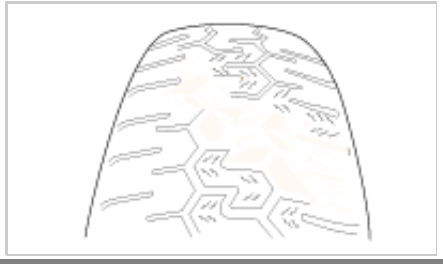
- Troubleshooting

Symptom	Possible cause	Remedy
Hard steering	Improper front wheel alignment	Correct
	Excessive turning resistance of lower arm ball joint	Replace
	Low tire pressure	Adjust
	No power assist	Repair and replace
Poor return of steering wheel to center	Improper front wheel alignment	Correct
Poor or rough ride	Improper front wheel alignment	Correct
	Malfunctioning shock absorber	Repair or replace
	Broken or worn stabilizer	Replace
	Broken or worn coil spring	Replace
	Worn lower arm bushing	Replace the lower arm assembly
Abnormal tire wear	Improper front wheel alignment	Correct
	Improper tire pressure	Adjust
	Malfunctioning shock absorber	Replace
Wandering	Improper front wheel alignment	Correct
	Poor turning resistance of lower arm ball joint	Repair
	Loose or worn lower arm bushing	Retighten or replace
Vehicle pulls to one side	Improper front wheel alignment	Correct
	Excessive turning resistance of lower arm ball joint	Replace
	Broken or worn coil spring	Replace

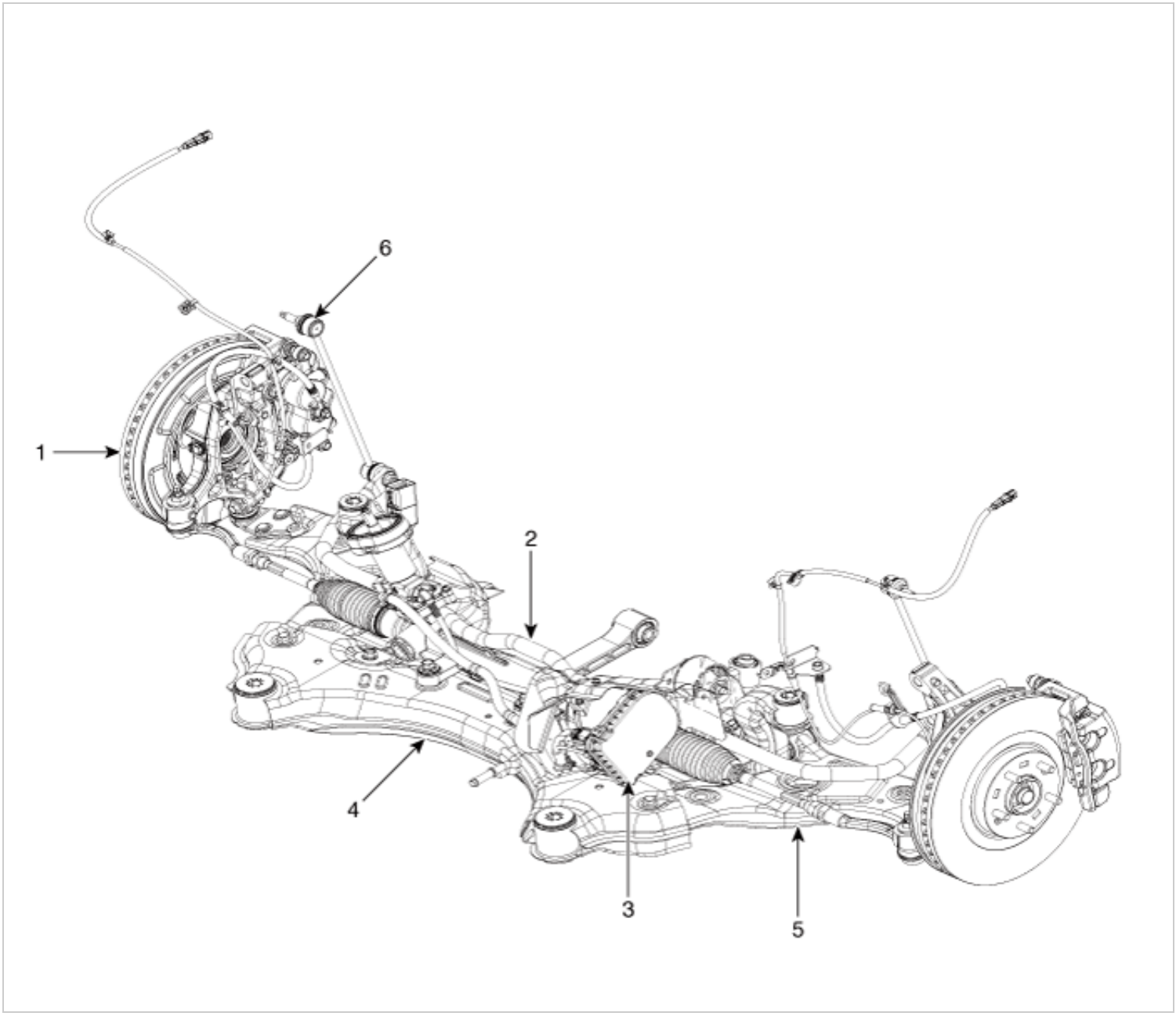
	Bent lower arm	Repair
Steering wheel shimmy	Improper front wheel alignment	Correct
	Poor turning resistance of lower arm ball joint	Replace
	Broken or worn stabilizer	Replace
	Worn lower arm bushing	Replace
	Malfunctioning shock absorber	Replace
	Broken or worn coil spring	Replace
Bottoming	Broken or worn coil spring	Replace
	Malfunctioning shock absorber	Replace

Wheel /tire noise, vibration and harshness concerns are directly related to vehicle speed and are not generally affected by acceleration, coasting or decelerating. Also, out-of-balance wheel and tires can vibrate at more than one speed. A vibration that is affected by the engine rpm, or is eliminated by placing the transmission in Neutral is not related to the tire and wheel. As a general rule, tire and wheel vibrations felt in the steering wheel are related to the front tire and wheel assemblies. Vibrations felt in the seat or floor are related to the rear tire and wheel assemblies. This can initially isolate a concern to the front or rear.

Careful attention must be paid to the tire and wheels. There are several symptoms that can be caused by damaged or worn tire and wheels. Perform a careful visual inspection of the tires and wheel assemblies. Spin the tires slowly and watch for signs of lateral or radial runout. Refer to the tire wear chart to determine the tire wear conditions and actions

Wheel and tire diagnosis		
Rapid wear at the center	Rapid wear at both shoulders	Wear at one shoulder
		
• Center-tread down to fabric due to excessive over inflated tires • Lack of rotation • Excessive toe on drive wheels • Heavy acceleration on drive	• Under-inflated tires • Worn suspension components • Excessive cornering speeds • Lack of rotation	• Toe adjustment out of specification • Camber out of specification • Damaged strut • Damaged lower arm
Partial wear	Feathered edge	Wear pattern
		
• Caused by irregular burrs on brake drums	• Toe adjustment out of specification • Damaged or worn tie rods • Damaged knuckle	• Excessive toe on non-drive wheels • Lack of rotation

- Components Location



1. Front axle assembly
2. Stabilizer bar
3. Steering gearbox
4. Sub frame
5. Front lower arm
6. Stabilizer link

- Components

1. Strut assembly
2. Spring lower pad
3. Dust cover
4. Coil spring
5. Spring upper pad
6. Bumper rubber
7. Insulator assembly & sturt bearing
8. Lock nut
9. Insulator cap

- Removal

⚠ CAUTION

- Be careful not to damage the parts located under the vehicle (floor under cover, fuel filter, fuel tank and canister) when raising the vehicle using the lift.
  (Refer to General Information - "Lift and Support Points")

1. Loosen the wheel nuts slightly.
   Raise the vehicle, and make sure it is securely supported.

2. Remove the front wheel and tire (A) from the front hub.

Tightening torque :
107.9 - 127.5 N.m (11.0 - 13.0 kgf.m, 79.6 - 94.0 lb-ft)

NOTICE

- Be careful not to damage the hub bolts when removing the front wheel and tire (A).

3. Disconnect the stabilizer link with the front strut assembly after loosening the nut (A).

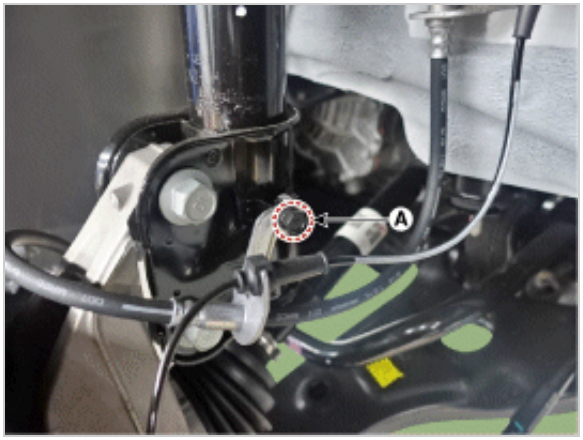
Tightening torque :
98.1 - 117.7 N.m (10.0 - 12.0 kgf.m, 72.3 - 86.8 lb-ft)

NOTICE

- When loosening the nut (A), fix the outer hexagon of stabilizer bar link.
- Be careful not to damage the stabilizer link boots.

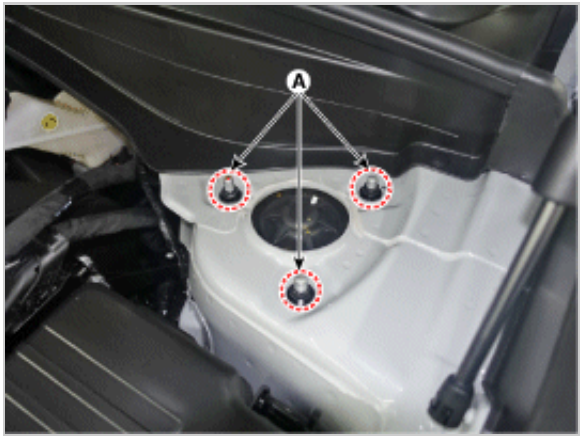
4. Loosen the mounting bolt (A) and then remove the brake hose bracket from the strut assembly.

Tightening torque :
8.8 - 13.7 N.m (0.9 - 1.4 kgf.m, 6.5 - 10.1 lb-ft)



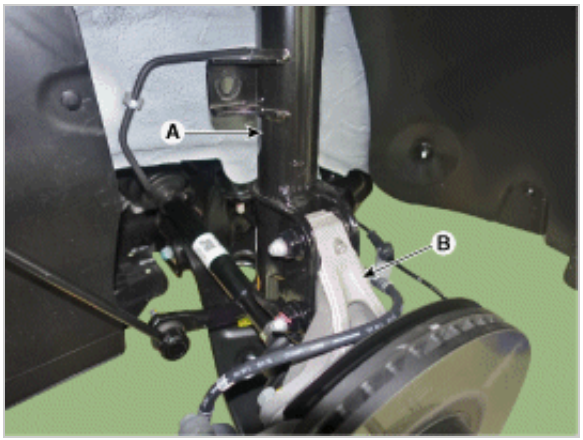
5. Loosen the upper strut mounting nuts (A).

Tightening torque :
53.9 - 73.9 N.m (5.5 - 7.5 kgf.m, 39.8 - 54.2 lb-ft)



6. Remove the front strut assembly (A) from the front axle (B) by loosening the bolts & nuts.

Tightening torque :
196.1 - 215.7 N.m (20.0 - 22.0 kgf.m, 144.7 - 159.1 lb-ft)

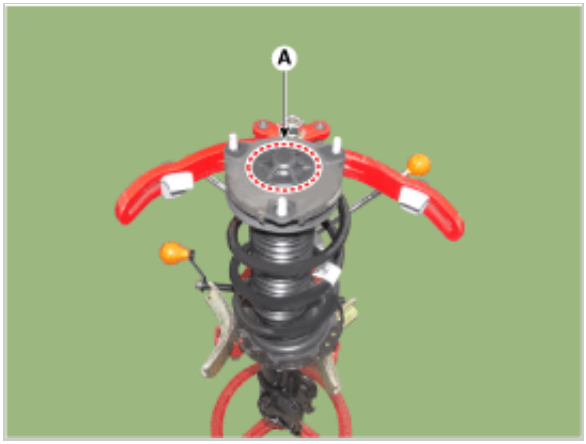


- Disassembly

Information

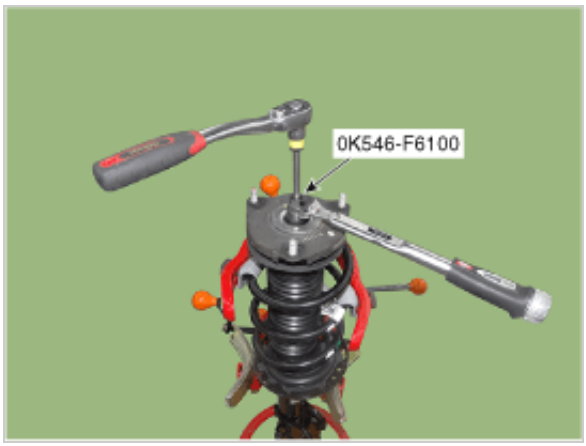
- When compressing the coil spring, be cautious as there may be corrosion due to damage to the coil spring painting. In order to avoid such painting damage, compress by putting over the waste hose, etc. (Refer to the picture below.)

1. Remove the insulator cap (A).



2. Using the spring compressor, compress the coil spring (A).

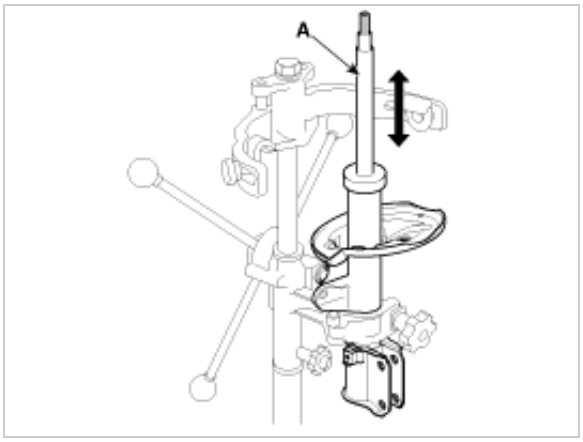
3. Using SST (0K546-F6100), loosen the self locking nut.



4. Remove the insulator, spring pad, coil spring and dust cover from the strut assembly.

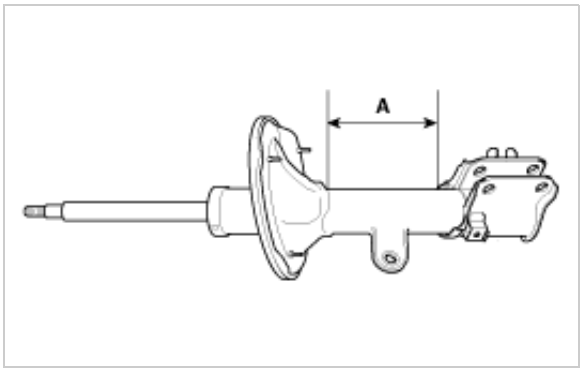
- Inspection

1. Check the strut insulator for wear or damage.
2. Check rubber parts for damage or deterioration.
3. Compress and extend the piston rod (A) and check that there is no abnormal resistance or unusual sound during operation.



Disposal

1. Fully extend the piston rod.
2. Drill a hole on the A section to remove gas from the cylinder.



⚠ CAUTION

- The gas coming out is harmless, but be careful of chips that may fly when drilling.
- Be sure to wear safety goggles or eye protection when performing this task.

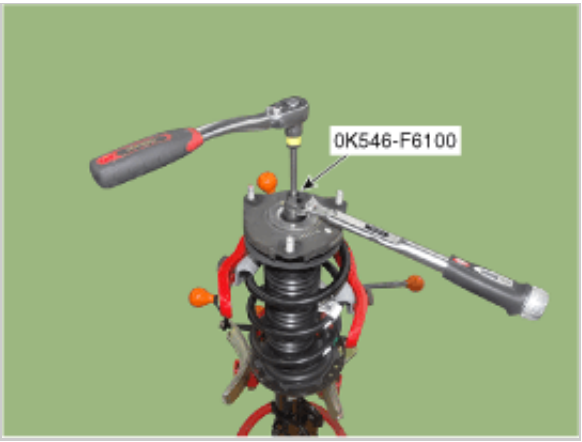
- Reassembly

1. Install the insulator, spring pad, coil spring and dust cover from the strut assembly.
2. Compress and extend the piston rod (A) and check that there is no abnormal resistance or unusual sound during operation

3. Using the special tool (0K546-F6100), install the self locking nut.

> **NOTICE**
> • Do not reuse the self locking nut.

Tightening torque :
107.9 - 117.7 N.m (11.0 - 12.0 kgf.m, 79.6 - 86.8 lb-ft)



- Installation

1. Install in the reverse order of removal.
2. Check the alignment.
   (Refer to Suspension System - "Alingment")

- Removal

> **⚠ CAUTION**
> • Be careful not to damage the parts located under the vehicle (floor under cover, fuel filter, fuel tank and canister) when raising the vehicle using the lift.

(Refer to General Information - "Lift and Support Points")

1. Loosen the wheel nuts slightly.
   Raise the vehicle, and make sure it is securely supported.
2. Remove the front wheel and tire (A) from the front hub.

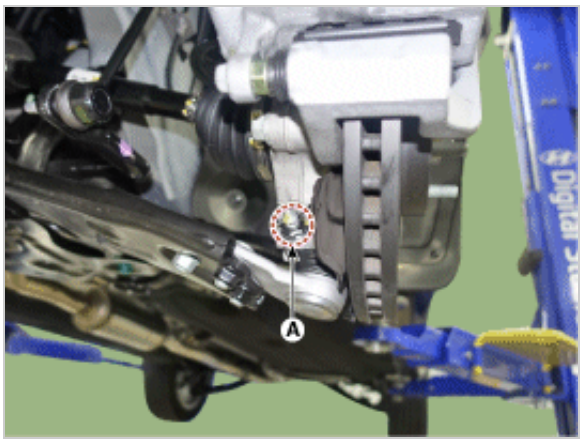
Tightening torque :
107.9 - 127.5 N.m (11.0 - 13.0 kgf.m, 79.6 - 94.0 lb-ft)

NOTICE

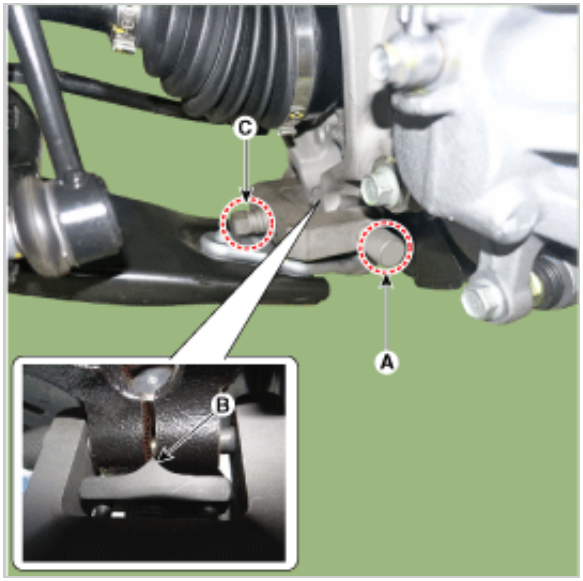
- Be careful not to damage the hub bolts when removing the front wheel and tire (A).

3. Remove the split pin and nut (A).

Tightening torque :
98.0 - 117.6 N.m (10.0 - 12.0 kgf.m, 72.3 - 86.7 lb-ft)



4. Remove the lower arm from the knuckle by using the SST (09568-4R100).
   (1) Install the support bolt (A) from lower arm bolt hole.
   (2) Install the support body (B) from front axle.
   (3) Tighten the bolt (C).



5. Remove the front lower arm (A) after loosening the bolts & nuts.

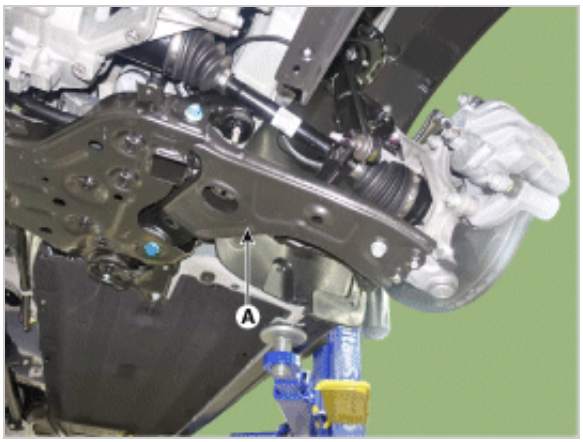
Tightening torque

Front :

117.7 - 137.3 N.m (12.0 - 14.0 kgf.m, 86.8 - 101.3 lb-ft)

Rear :

156.9 - 176.5 N.m (16.0 - 18.0 kgf.m, 115.7 - 130.2 lb-ft)



- Inspection

1. Check the bushing for wear and deterioration.
2. Check the lower arm for bending or breakage.
3. Check the lower arm for deformation.
4. Check the all bolts and nuts.

- Replacement

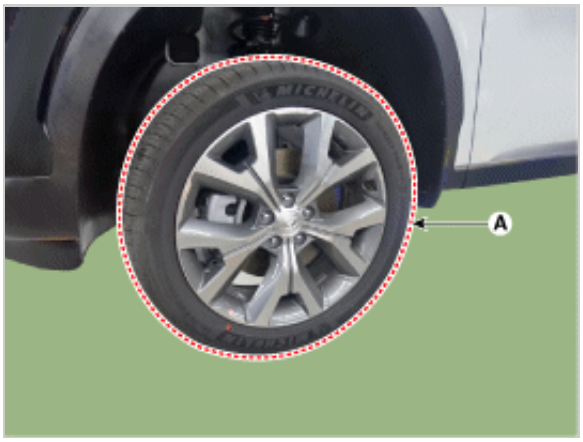
1. Loosen the wheel nuts slightly.
   Raise the vehicle, and make sure it is securely supported.
2. Remove the front wheel and tire (A) from the front hub.

Tightening torque :

107.9 - 127.5 N.m (11.0 - 13.0 kgf.m, 79.6 - 94.0 lb-ft)

NOTICE

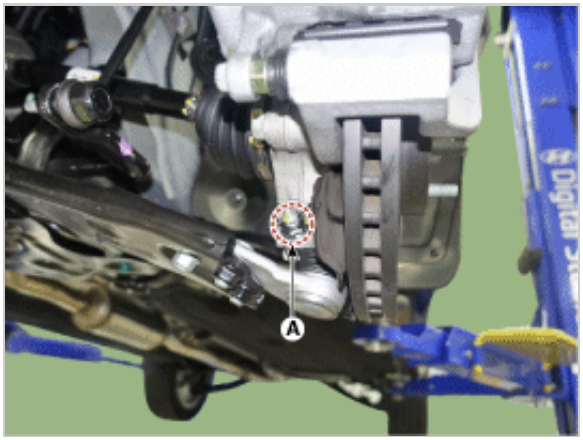
- Be careful not to damage the hub bolts when removing the front wheel and tire (A).



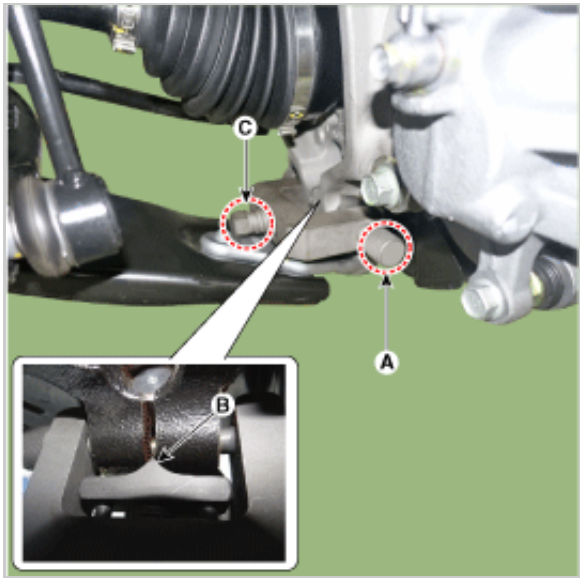
3. Remove the split pin and nut (A).

Tightening torque :

98.0 - 117.6 N.m (10.0 - 12.0 kgf.m, 72.3 - 86.7 lb-ft)

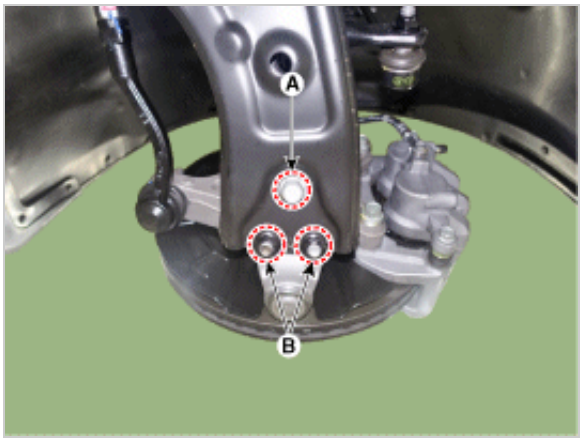


4. Remove the lower arm from the knuckle by using the SST (09568-4R100).
   (1) Install the support bolt (A) from lower arm bolt hole.
   (2) Install the support body (B) from front axle.
   (3) Tighten the bolt (C).



5. Remove the ball joint assembly after losening the bolt (A) and nut (B).

Tightening torque:
107.9 - 127.5N.m (11.0 - 13.0kgf.m, 79.6 - 94.0lb-ft)



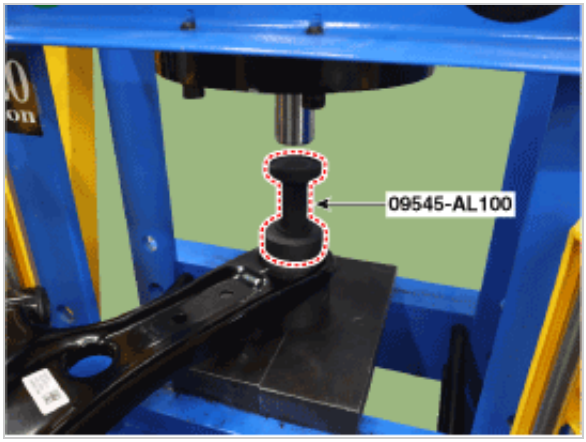
- Replacement

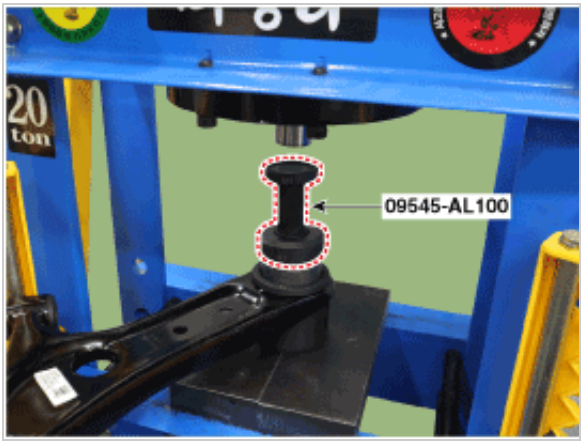
Steel lower arm

Information

- Replace the lower arm G bushing if it only has a crack, noise from bushing without cracks can be improved by applying silicone oil.

1. Replace the lower arm G bushing by using the SST (09545-AL100).





Information

- Refer to the enclosed manual for detailed usage instructions of the lower arm G bushing SST(09545-AL100).

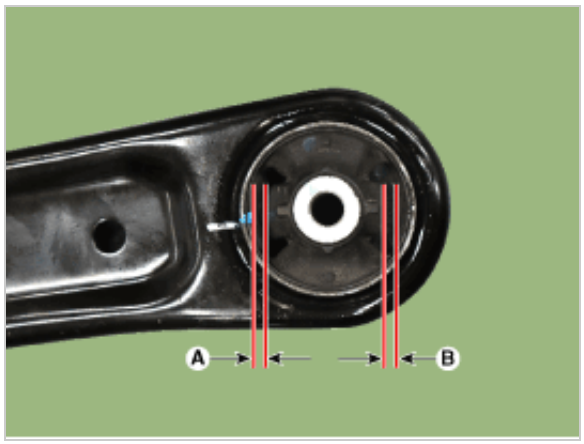
⚠ CAUTION

- Wear personal protective equipment during press operation.
- When the press is in operation, ensure that no part of the body comes into contact within the operating range.
- Due to the risk of injury from falling tools and parts, before operating the press, ensure that all tools and components are securely positioned in their proper places.

NOTICE

- Lubricate the bushings and mounting surface with grease during the operation.
- Measure the void spacing (A), (B) to ensure that the bushing can be properly installed in the correct direction.

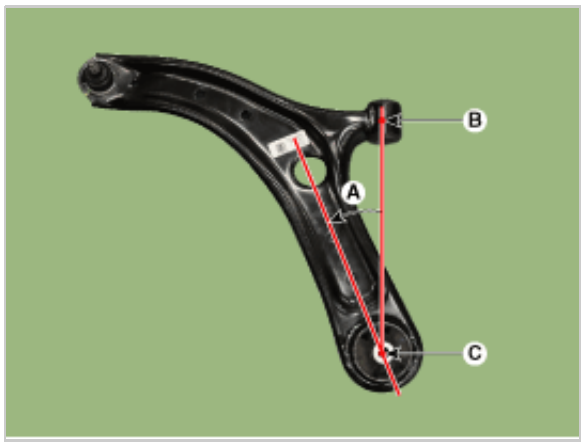
(A) : Ball joint side
(B) : Opposite side



- Refer to the enclosed manual for void spacing specifications for each vehicle model.
- There may be no difference in void spacing for used bushing due to wear.

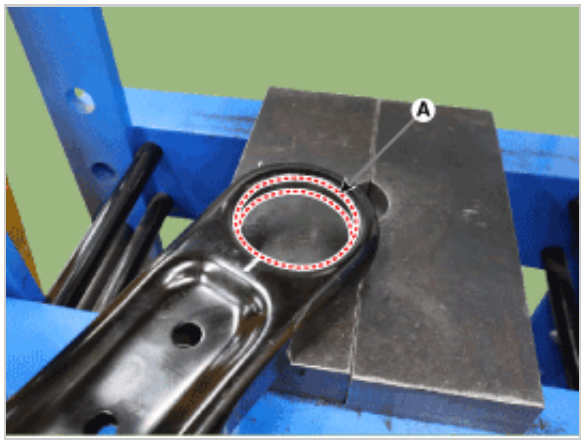
• Be careful not to install the bushing at the incorrect angle.

Installation angle (A) : Angle formed counterclockwise from A bushing (B) and G bushing (C) reference



- Refer to the enclosed manual for installation angle specifications for each vehicle model.

• Clean the bushing mounting surface (A) from any foreign substances using a clean cloth or similar material when installing.



• Ensure that the marking angle (A) of the bushing and the lower arm does not deviate from the reference value.

Reference Value :± 3°

• If excessive pressure is applied after installation is complete, it may result in damage to the components and tools.

- Removal

⚠ CAUTION

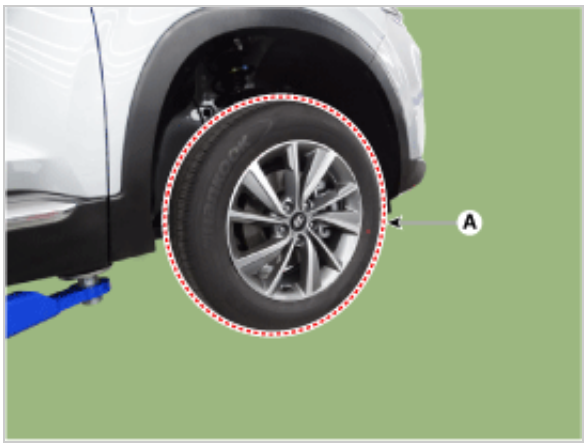
• Be careful not to damage the parts located under the vehicle (floor under cover, fuel filter, fuel tank and canister) when raising the vehicle using the lift.
(Refer to General Information - "Lift and Support Points")

1. Turn the ignition switch OFF and disconnect the battery negative (-) cable.
2. Turn the steering wheel so that the front wheels are placed in the straight ahead position.
3. Remove the front wheel and tire (A) from front hub.

Tightening torque :
107.9 - 127.5 N.m (11.0 - 13.0 kgf.m, 79.6 - 94.0 lb-ft)

NOTICE

• Be careful not to damage the hub bolts when removing the front wheel and tire (A).

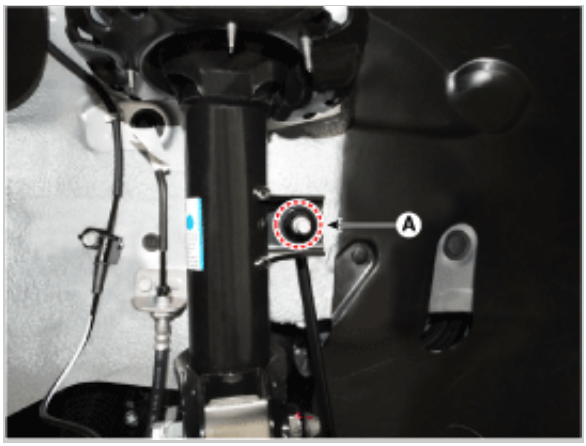


4. Disconnect the stabilizer link with the front strut assembly after loosening the nut (A).

Tightening torque :
98.1 - 117.7 N.m (10.0 - 12.0 kgf.m, 72.3 - 86.8 lb-ft)

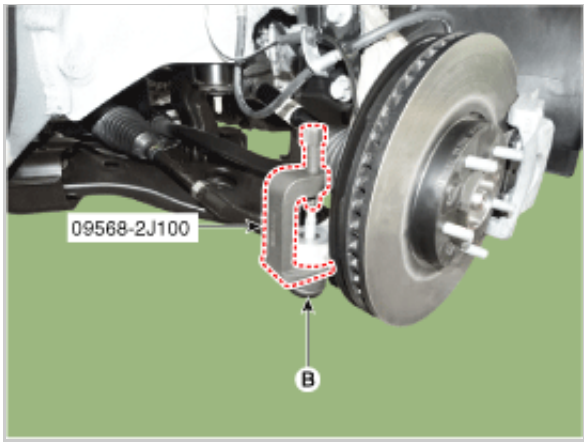
NOTICE

- When loosening the nut (A), fix the outer hexagon of stabilizer bar link.
- Be careful not to damage the stabilizer link boots.



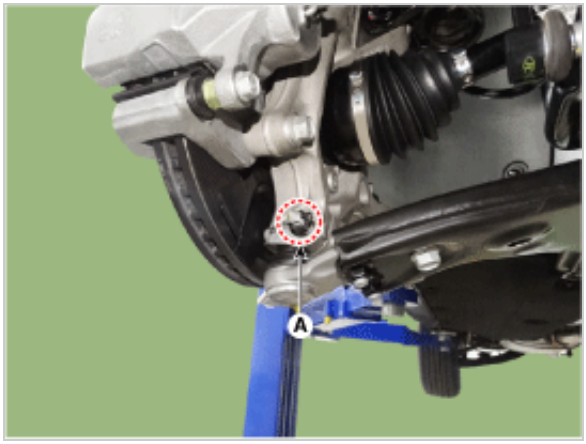
5. Remove the tie rod end ball joint.
   (1) Remove the split pin and nut (A).
   (2) Using SST(09568-2J100), separate the ball joint (B) from the knuckle.

Tightening torque :
98.1 - 117.7 N.m (10.0 - 12.0 kgf.m, 72.3 - 86.8 lb-ft)

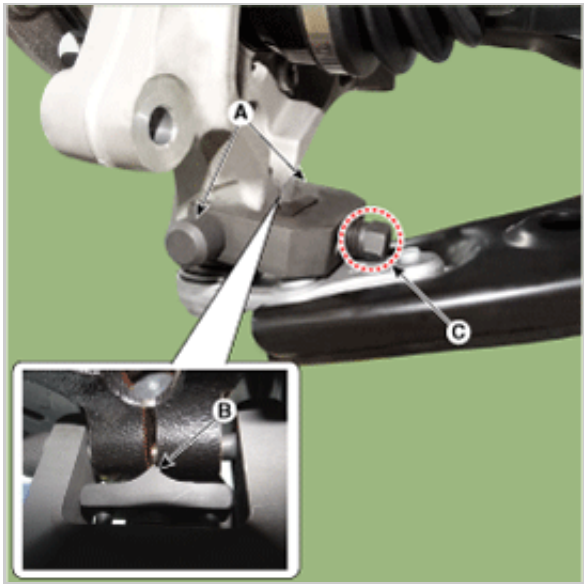


6. Remove the split pin and nut (A).

Tightening torque :
98.1 - 117.7 N.m (10.0 - 12.0 kgf.m, 72.3 - 86.8 lb-ft)



7. Remove the lower arm from the knuckle by using the SST (09568-4R100).
   (1) Install the support bolt (A) from lower arm bolt hole.
   (2) Install the support body (B) from front axle.
   (3) Tighten the bolt (C).

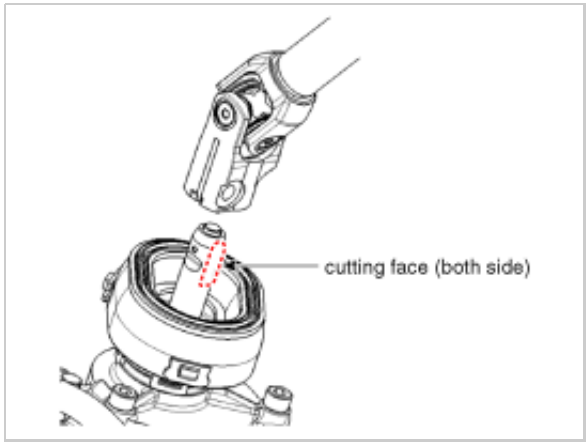


8. Loosen the bolt (A) and then disconnect the universal joint assembly from the pinion of the steering gear box.

Tightening torque :
32.4 - 37.3 N.m (3.3 - 3.8 kgf.m, 23.9 - 27.5 lb-ft)

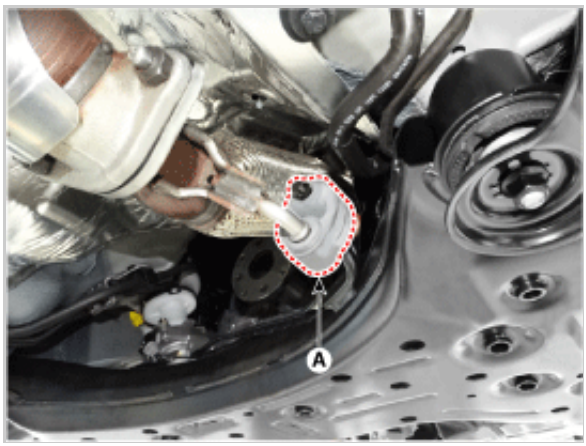
NOTICE

- Do not reuse the bolt.
- Lock the steering wheel in the straight ahead position to prevent the damage of the clock spring inner cable.
- Assemble so that the universal joint hole is inserted matching the cut surface of the pinion shaft.



9. Remove the under cover.
   (Refer to Engine Mechanical System - "Engine Room Under Cover")
10. Disconnect the R-MDPS main connector (A).**[R-MDPS Type only]**

11. Remove the muffler rubber hanger (A).

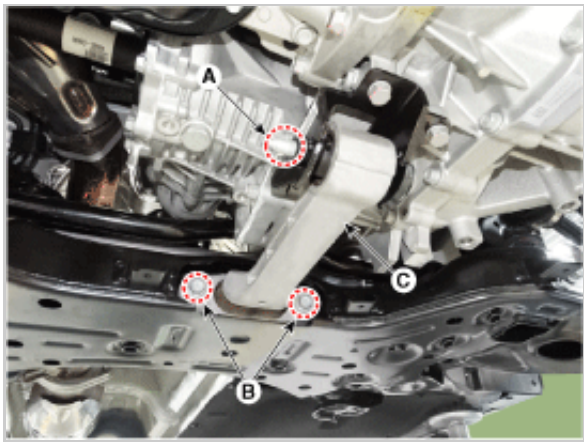


12. Remove the roll rod bracket (C) by loosening the bolt (A), (B).

Tightening torque

(A) :107.9 - 127.5 N.m (11.0 - 13.0 kgf.m, 79.6 - 94.0 lb-ft)

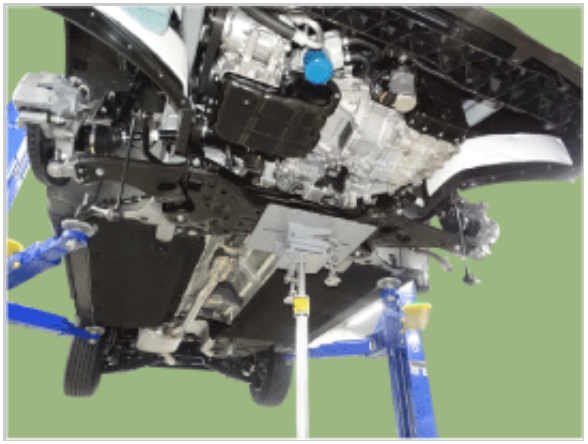
(B) :49.0 - 63.7 N.m (5.0 - 6.5 kgf.m, 36.2 - 47.0 lb-ft)



13. Remove the subframe by loosening the mounting bolts and nuts.

> **⚠ CAUTION**
> • Set a transmission jack for safety.

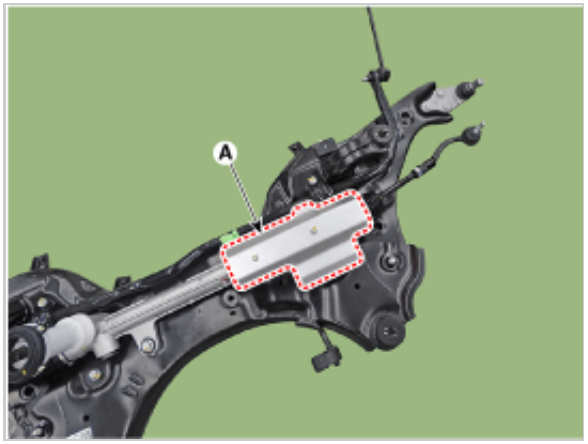
Tightening torque
Sub frame mounting bolts and nut :
176.5 - 196.1 N.m (18.0 - 20.0 kgf.m, 130.2 - 144.7 b-ft)
Sub frame stay mounting bolt :
44.1 - 53.9 N.m (4.5 - 5.5 kgf.m, 32.5 - 39.8 lb-ft)



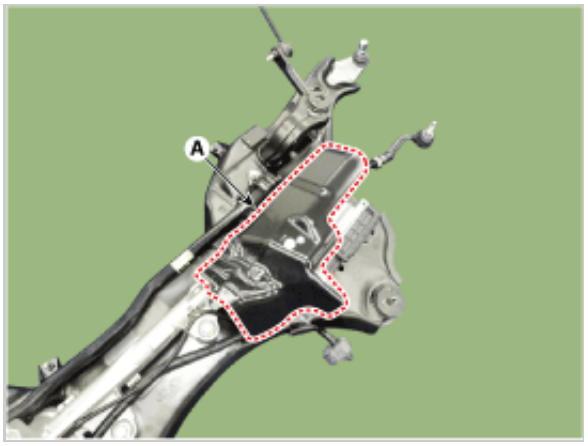
14. Remove the heated protector (A).

Tightening torque :
6.9 - 10.8 N.m (0.7 - 1.1 kgf.m, 5.1 - 8.0 lb-ft)

[C-MDPS]



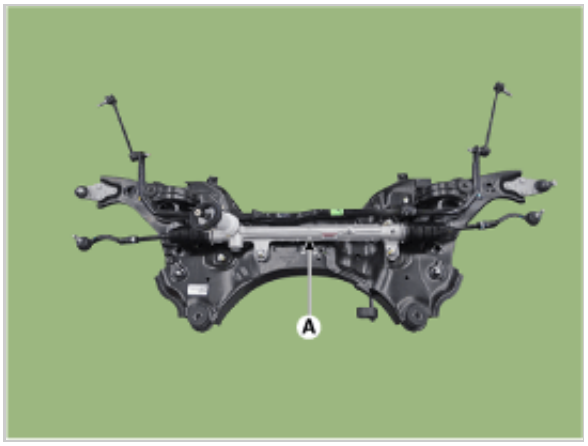
[R-MDPS]



15. Remove the steering gearbox (A) from the front sub frame by loosening the mounting bolts.

Tightening torque :
88.2 - 107.8 N.m (9.0 - 11.0 kgf.m, 65.0 - 79.5 lb-ft)

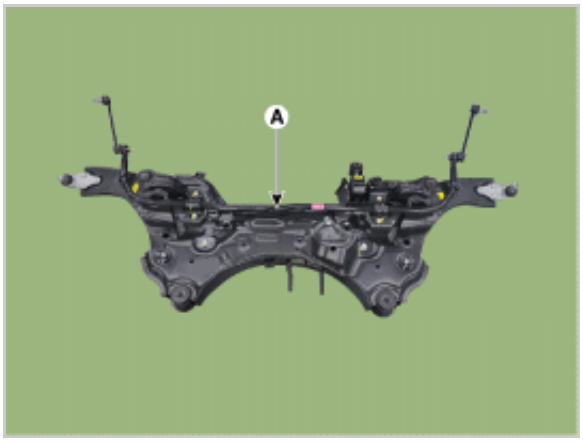
[C-MDPS]



[R-MDPS]

16. Loosen the mounting bolts and then remove the stabilizer bar (A).

Tightening torque :
49.0 - 63.7 N.m (5.0 - 6.5 kgf.m, 36.2 - 47.0 lb-ft)



- Inspection

1. Check the bushing for wear and deterioration.
2. Check the front stabilizer bar for deformation.
3. Check the front stabilizer link ball joint for damage.

- Installation

1. Install in the reverse order of removal.
2. Check the alignment.
   (Refer to Suspension System - "Alingment")

Suspension System

- Removal

⚠ CAUTION

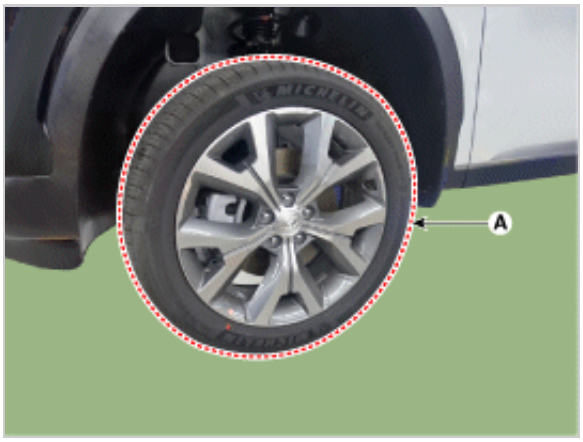
- Be careful not to damage the parts located under the vehicle (floor under cover, fuel filter, fuel tank and canister) when raising the vehicle using the lift.
  (Refer to General Information - "Lift and Support Points")

1. Turn the ignition switch OFF and disconnect the battery negative (-) cable.

2. Turn the steering wheel so that the front wheels are placed in the straight ahead position.
3. Remove the front wheel and tire (A) from front hub.

Tightening torque :
107.9 - 127.5 N.m (11.0 - 13.0 kgf.m, 79.6 - 94.0 lb-ft)

NOTICE
- Be careful not to damage the hub bolts when removing the front wheel and tire (A).



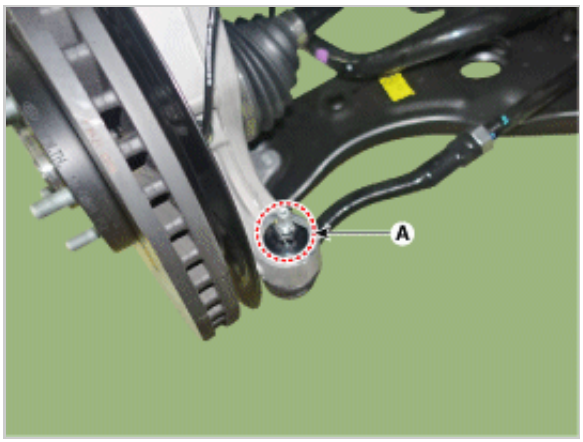
4. Disconnect the stabilizer link with the front strut assembly after loosening the nut (A).

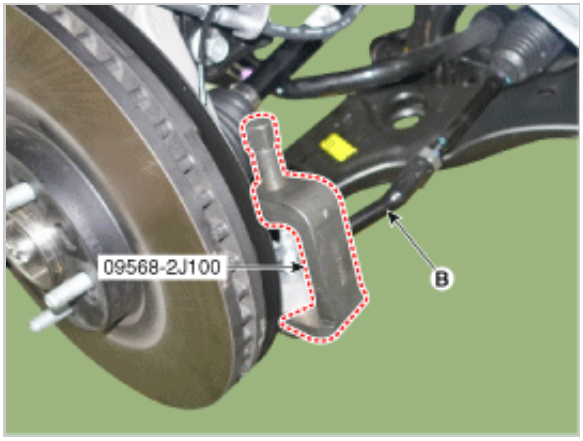
Tightening torque :
98.1 - 117.7 N.m (10.0 - 12.0 kgf.m, 72.3 - 86.8 lb-ft)

NOTICE
- When loosening the nut (A), fix the outer hexagon of stabilizer bar link.
- Be careful not to damage the stabilizer link boots.

5. Remove the tie rod end ball joint.
   (1) Remove the split pin and nut (A).
   (2) Using SST(09568-2J100), separate the ball joint (B) from the knuckle.

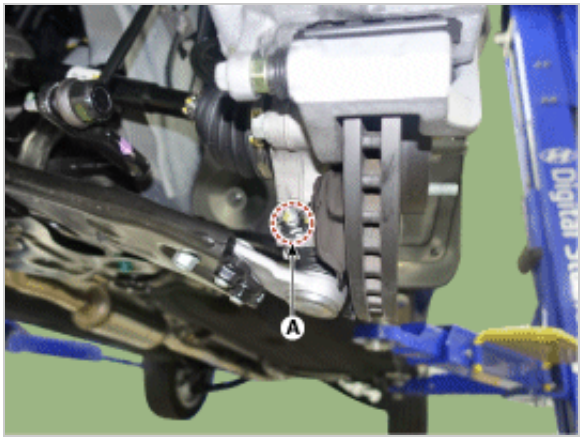
Tightening torque :
98.1 - 117.7 N.m (10.0 - 12.0 kgf.m, 72.3 - 86.8 lb-ft)



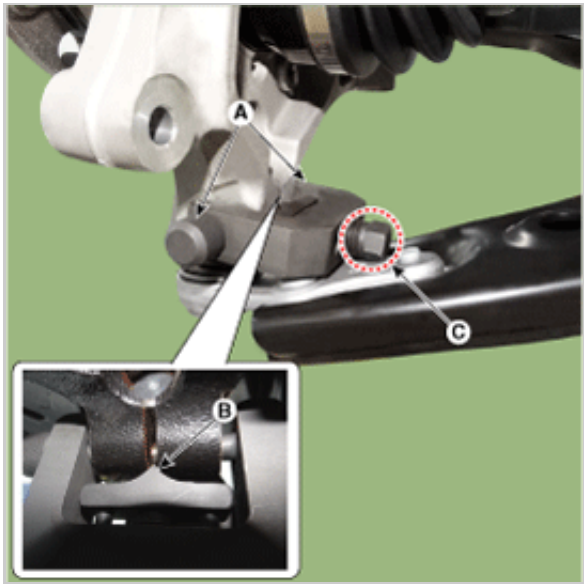


6. Remove the split pin and nut (A).

Tightening torque :
98.1 - 117.7 N.m (10.0 - 12.0 kgf.m, 72.3 - 86.8 lb-ft)



7. Remove the lower arm from the knuckle by using the SST (09568-4R100).
   (1) Install the support bolt (A) from lower arm bolt hole.
   (2) Install the support body (B) from front axle.
   (3) Tighten the bolt (C).

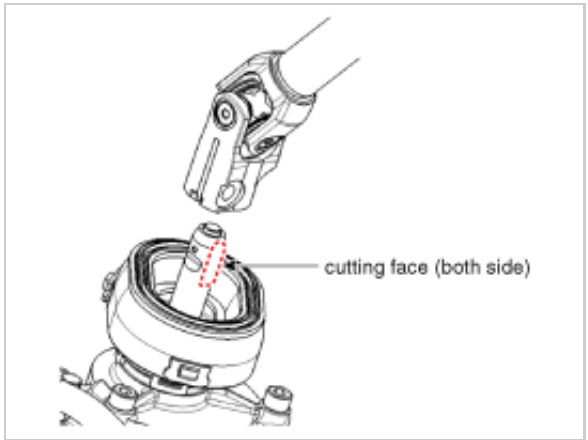


8. Loosen the bolt (A) and then disconnect the universal joint assembly from the pinion of the steering gear box.

Tightening torque :
32.4 - 37.3 N.m (3.3 - 3.8 kgf.m, 23.9 - 27.5 lb-ft)

NOTICE

- Do not reuse the bolt.
- Lock the steering wheel in the straight ahead position to prevent the damage of the clock spring inner cable.
- Assemble so that the universal joint hole is inserted matching the cut surface of the pinion shaft.

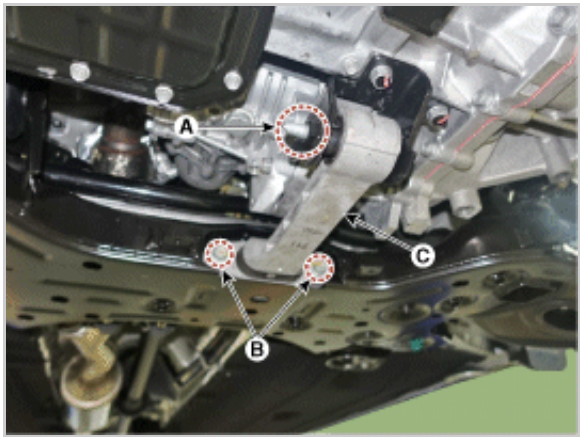


9. Remove the under cover.
   (Refer to Engine Mechanical System - "Engine Room Under Cover")
10. Disconnect the R-MDPS main connector (A).**[R-MDPS Type only]**

11. Remove the muffler rubber hanger (A).

12. Remove the roll rod bracket (C) by loosening the bolt (A), (B).

Tightening torque
(A) :107.9 - 127.5 N.m (11.0 - 13.0 kgf.m, 79.6 - 94.0 lb-ft)
(B) :49.0 - 63.7 N.m (5.0 - 6.5 kgf.m, 36.2 - 47.0 lb-ft)



13. Remove the subframe by loosening the mounting bolts and nuts.

⚠ CAUTION
- Set a transmission jack for safety.

Tightening torque

Sub frame mounting bolts and nut :

176.5 - 196.1 N.m (18.0 - 20.0 kgf.m, 130.2 - 144.7 b-ft)

Sub frame stay mounting bolt :

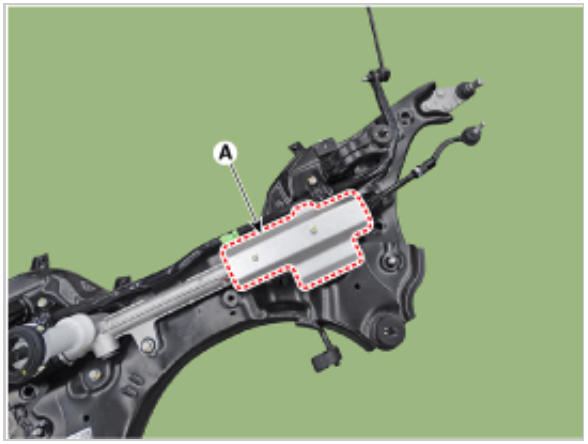
44.1 - 53.9 N.m (4.5 - 5.5 kgf.m, 32.5 - 39.8 lb-ft)

14. Remove the heated protector (A).

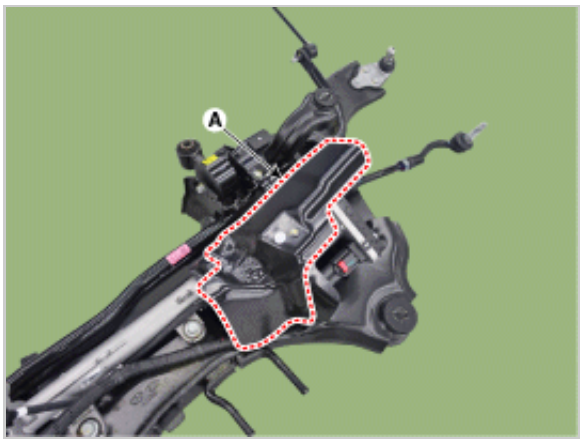
Tightening torque :

6.9 - 10.8 N.m (0.7 - 1.1 kgf.m, 5.1 - 8.0 lb-ft)

[C-MDPS]



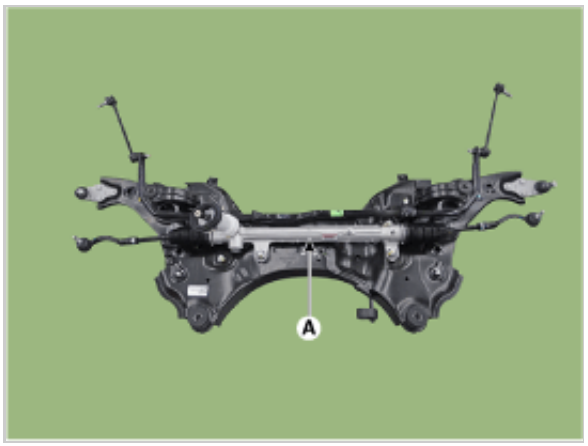
[R-MDPS]



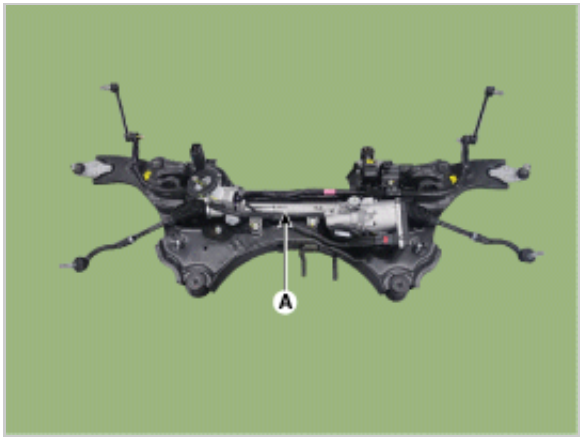
15. Remove the steering gearbox (A) from the front sub frame by loosening the mounting bolts.

Tightening torque :
88.2 - 107.8 N.m (9.0 - 11.0 kgf.m, 65.0 - 79.5 lb-ft)

[C-MDPS]

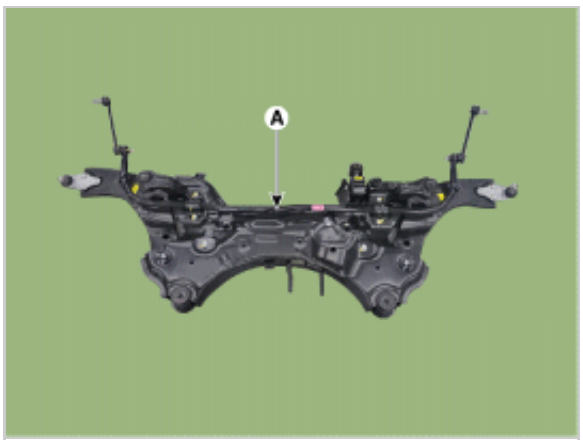


[R-MDPS]



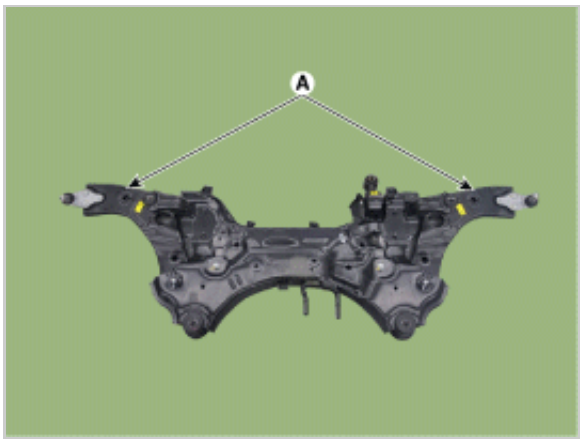
16. Loosen the mounting bolts and then remove the stabilizer bar (A).

Tightening torque :
49.0 - 63.7 N.m (5.0 - 6.5 kgf.m, 36.2 - 47.0 lb-ft)



17. Remove the front lower arm (A) from the sub frame.

Tightening torque :
Front :117.7 - 137.3 N.m (12.0 - 14.0 kgf.m, 86.8 - 101.3 lb-ft)
Rear :156.9 - 176.5 N.m (16.0 - 18.0 kgf.m, 115.7 - 130.2 lb-ft)

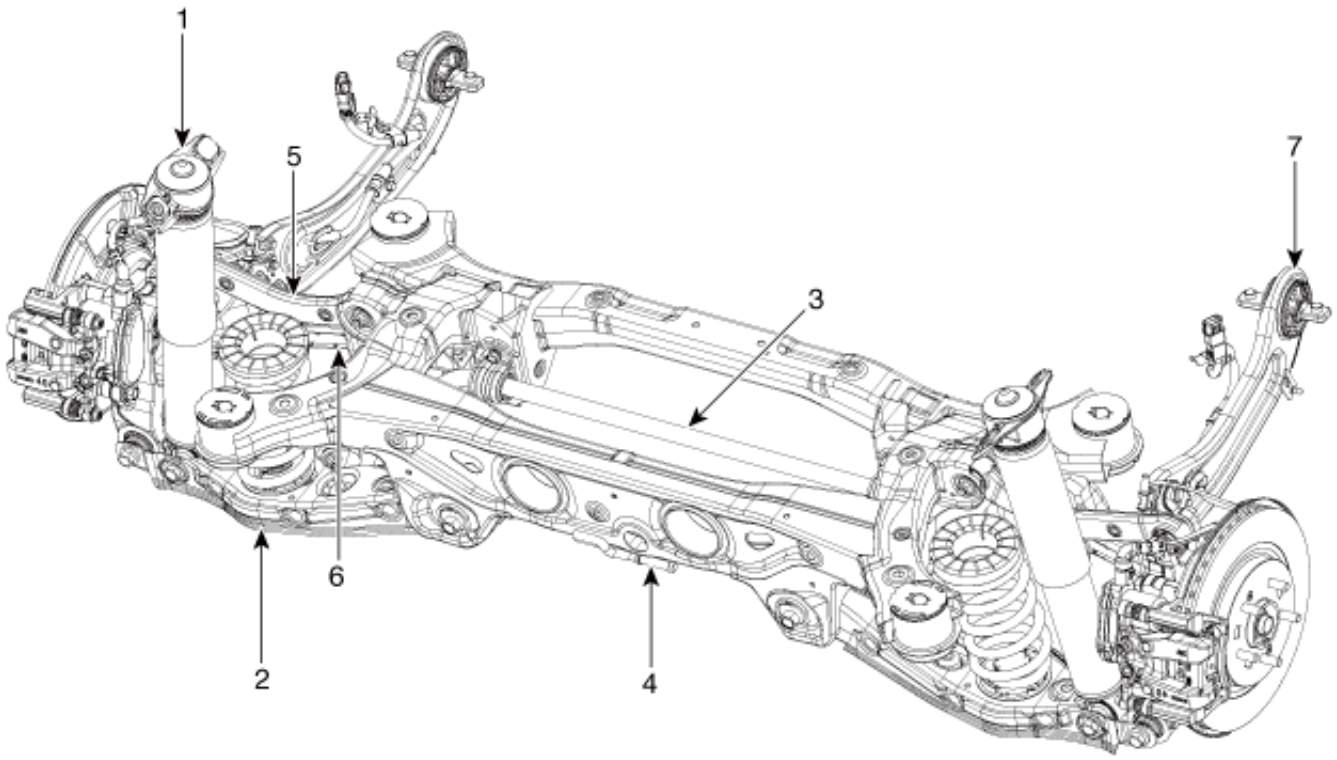


- Installation

1. Install in the reverse order of removal.
2. Check the alignment.
   (Refer to Suspension System - "Alingment")

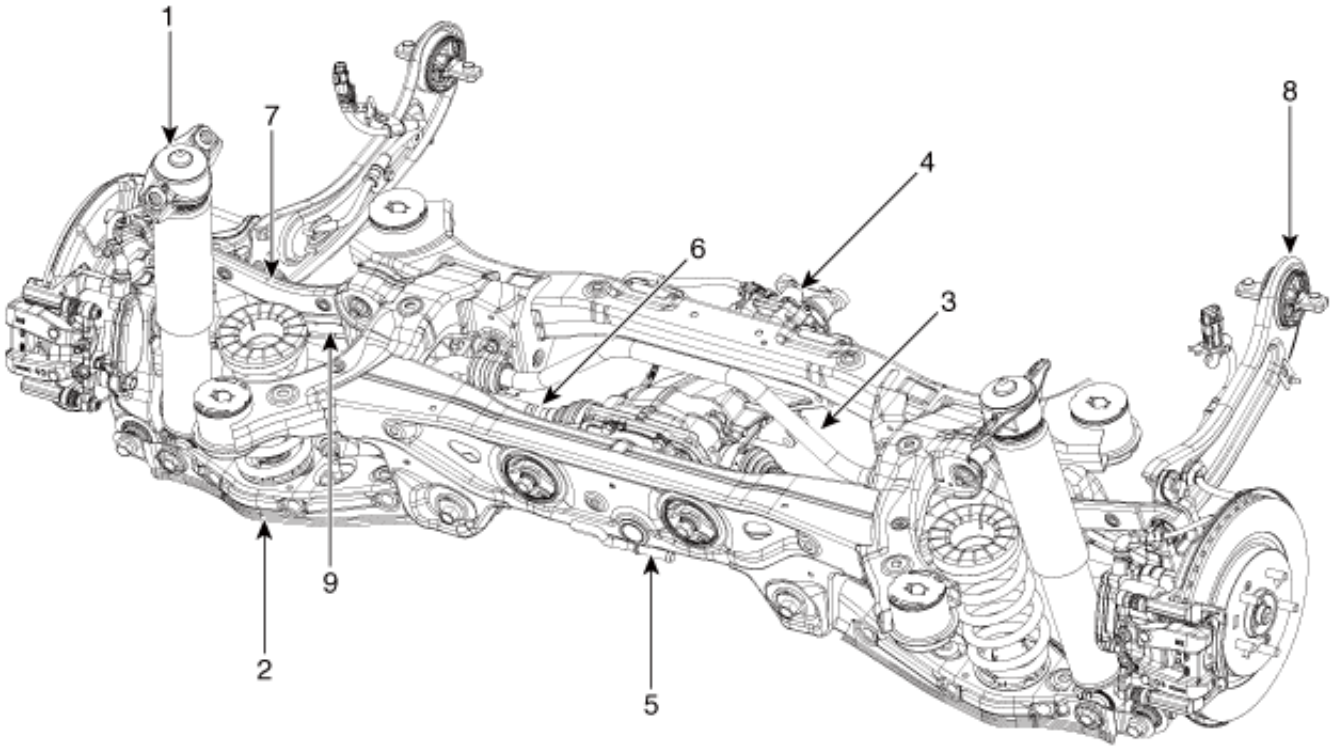
- Components

2WD



1. Rear shock absorber
2. Rear lower arm
3. Rear stabilizer bar
4. Rear cross member
5. Rear upper arm
6. Rear assist arm
7. Trailing arm

4WD



1. Rear shock absorber
2. Rear lower arm
3. Rear stabilizer bar
4. Rear differential carrier
5. Rear cross member
6. Rear driveshaft
7. Rear upper arm
8. Trailing arm
9. Rear assist arm

- Components

1. Rear shock absorber
2. Dust cover
3. Bumper rubber
4. Insulator assembly
5. Lock nut
6. Insulator cap

- Removal

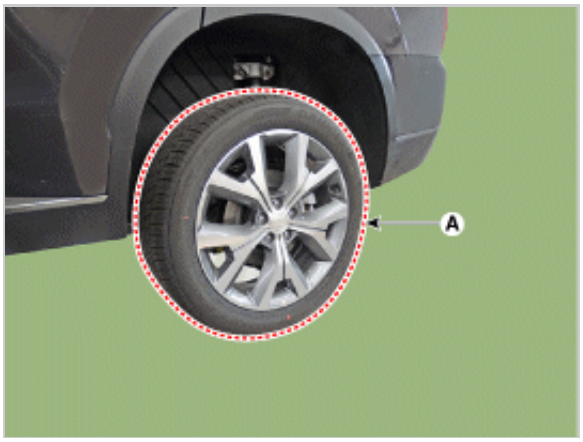
⚠ CAUTION

- Be careful not to damage the parts located under the vehicle (floor under cover, fuel filter, fuel tank and canister) when raising the vehicle using the lift.
  (Refer to General Information - "Lift and Support Points")

1. Loosen the wheel nuts slightly.
   Raise the vehicle, and make sure it is securely supported.
2. Remove the rear wheel and tire (A) from rear hub.

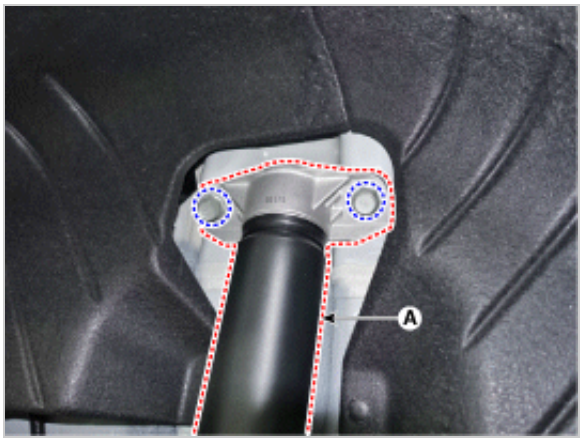
Tightening torque :
107.9 - 127.5 N.m (11.0 - 13.0 kgf.m, 79.6 - 94.0 lb-ft)

> **NOTICE**
> • Be careful not to damage the hub bolts when removing the rear wheel and tire (A).



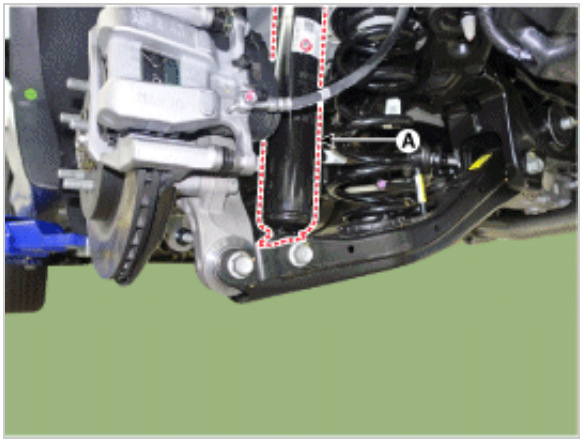
3. Remove the rear shock absorber (A) from the body by loosening the bolt.

Tightening torque :
98.1 - 117.7 N.m (10.0 - 12.0 kgf.m, 72.3 - 86.8 lb-ft)



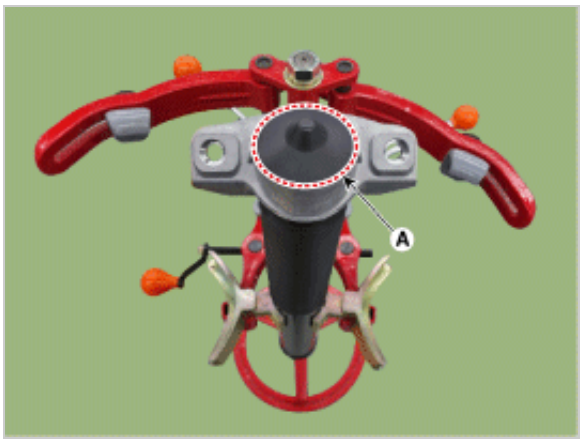
4. Loosen the bolt & nut and then remove the rear shock absorber (A) from the lower arm.

Tightening torque :
137.3 - 156.9 N.m (14.0 - 16.0 kgf.m, 101.3 - 115.7 lb-ft)

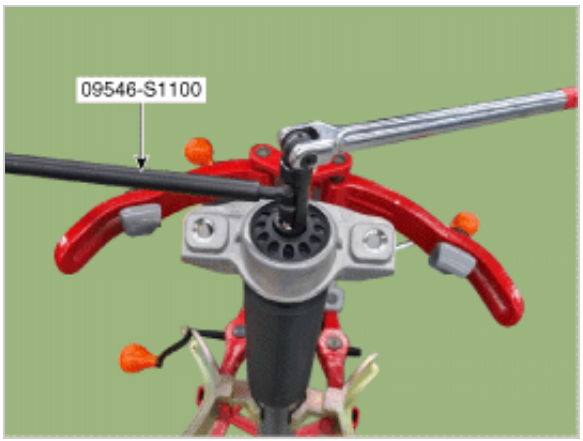


- Disassembly

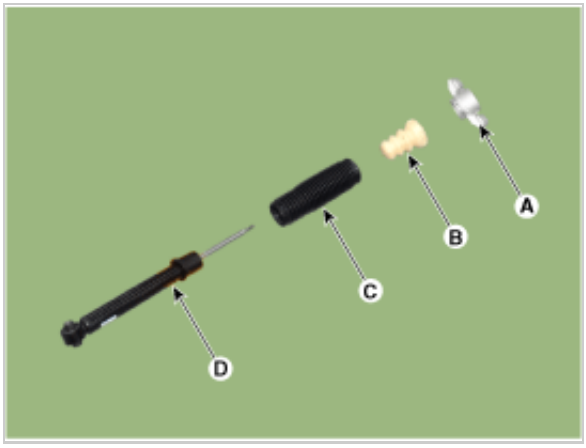
1. Remove the lock nut cover (A).



2. Using the special tool (09546-S1100), install the self locking nut.

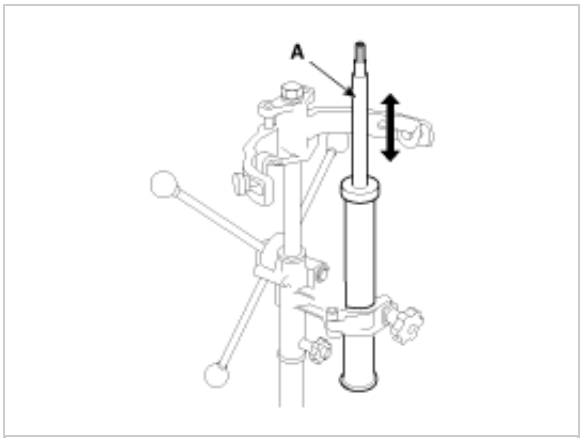


3. Separate the Insulator assembly (A), bumper rubber (B), dust cover (C), shock absorber (D).



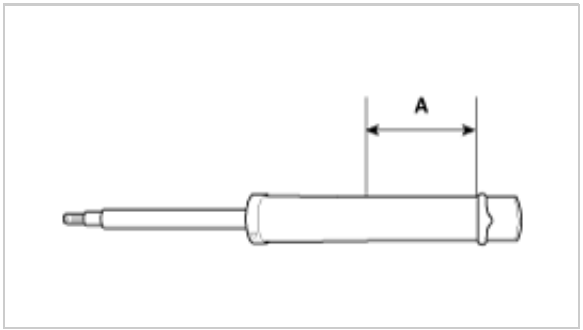
- Inspection

1. Check the rubber parts for damage or deterioration.
2. Check the shock absorber for abnormal resistance or unusual sounds.



- Disposal

1. Fully extend the shock absorber rod.
2. Drill a hole to remove gas from the cylinder.



⚠ CAUTION

- The gas corning out is harmless, but be careful of chips that may fly when drilling. Be sure to use face shield and safety goggles.

- Reassembly

1. To reassembly, reverse the disassembly procedure.

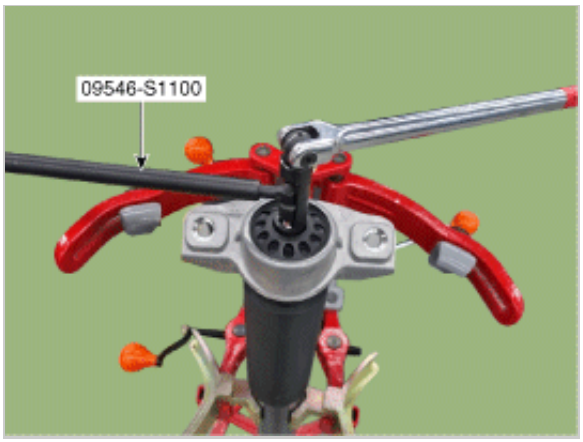
2. Using SST(09546-3X100), install the lock nut.

NOTICE

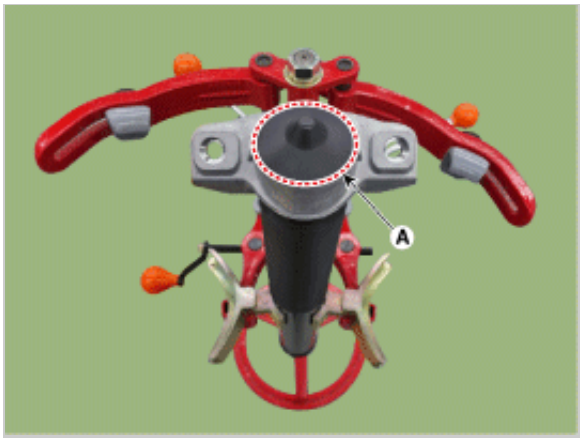
- Do not reuse the self locking nut.

Tightening torque :

29.4 N.m (3.0 kgf.m, 21.7 lb-ft)



3. Install the lock nut cover (A).



- Installation

1. Install in the reverse order of removal.

- Removal

⚠ CAUTION

- Be careful not to damage the parts located under the vehicle (floor under cover, fuel filter, fuel tank and canister) when raising the vehicle using the lift.
  (Refer to General Information - "Lift and Support Points")

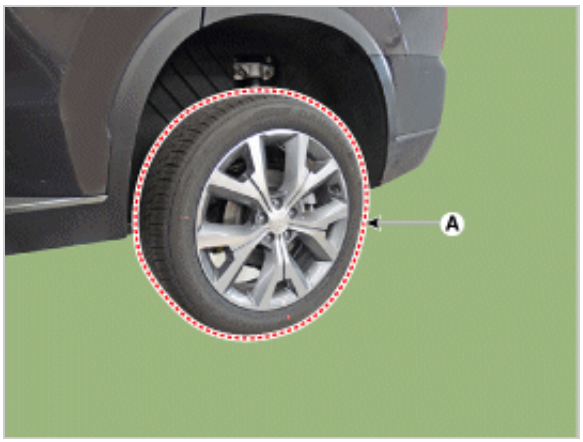
1. Loosen the wheel nuts slightly.
   Raise the vehicle, and make sure it is securely supported.
2. Remove the rear wheel and tire (A) from rear hub.

Tightening torque :

107.9 - 127.5 N.m (11.0 - 13.0 kgf.m, 79.6 - 94.0 lb-ft)

NOTICE

- Be careful not to damage the hub bolts when removing the rear wheel and tire (A).

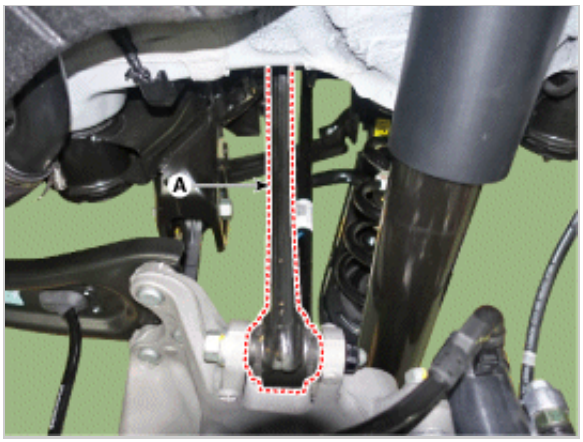


3. Loosen the bolt & nut then remove the rear upper arm (A) from the rear axle.

Tightening torque:
98.0 - 117.6 N.m (10.0 - 12.0 kgf.m, 72.3 - 86.7 lb-ft)

NOTICE

- Set up the transmission jack under the lower arm in order to remove it in no-load condition.



- Inspection

1. Check the bushing for wear and deterioration.
2. Check the rear upper arm or damage and deformation.
3. Check for all bolts and nut.

- Installation

1. Install in the reverse order of removal.
2. Check the alignment.
   (Refer to Suspension System - "Alingment")

- Removal

CAUTION

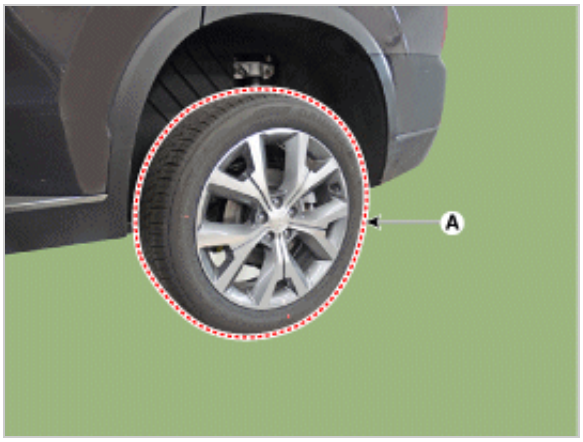
- Be careful not to damage the parts located under the vehicle (floor under cover, fuel filter, fuel tank and canister) when raising the vehicle using the lift.
  (Refer to General Information - "Lift and Support Points")

1. Loosen the wheel nuts slightly.
   Raise the vehicle, and make sure it is securely supported.
2. Remove the rear wheel and tire (A) from rear hub.

Tightening torque :
107.9 - 127.5 N.m (11.0 - 13.0 kgf.m, 79.6 - 94.0 lb-ft)

NOTICE

- Be careful not to damage the hub bolts when removing the rear wheel and tire (A).

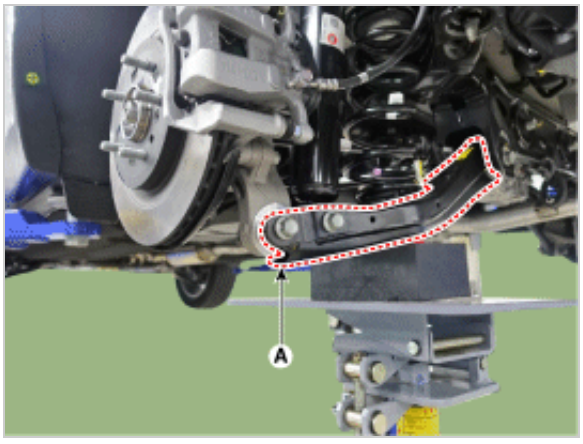


3. Loosen the bolt & nut and then remove the rear lower arm (A) from the rear axle.

Tightening torque :
137.3 - 156.9 N.m (14.0 - 16.0 kgf.m, 101.3 - 115.7 lb-ft)

NOTICE

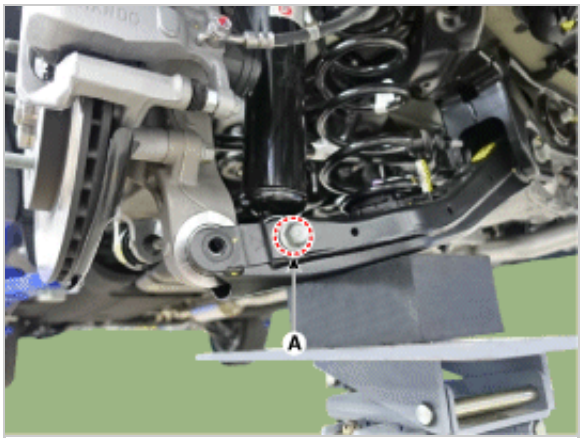
- Set up the transmission jack under the lower arm in order to remove it in no-load condition.



4. Loosen the bolt & nut (A) and then disconnect the rear shock absorber from the lower arm.

Tightening torque :

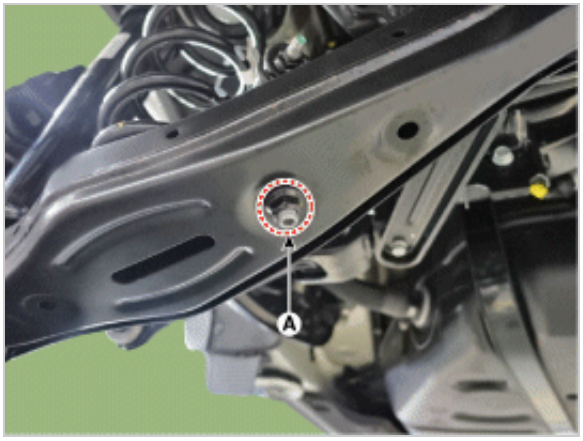
137.3 - 156.9 N.m (14.0 - 16.0 kgf.m, 101.3 - 115.7 lb-ft)



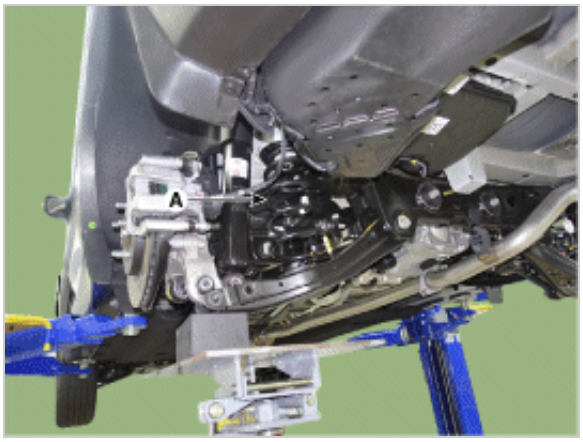
5. Loosen the nut (A) and then disconnect the stabilizer bar link from the lower arm.

Tightening torque :

98.0 - 117.6 N.m (10.0 - 12.0 kgf.m, 72.3 - 86.7 lb-ft)



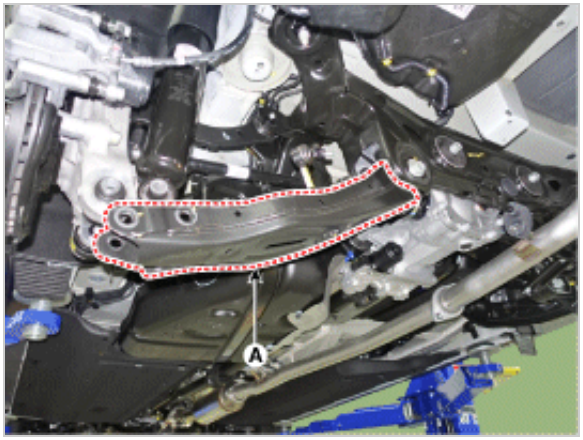
6. Remove the coil spring (A).



7. Loosen the bolt & nut and then remove the rear lower arm (A).

Tightening torque :

137.3 - 156.9 N.m (14.0 - 16.0 kgf.m, 101.3 - 115.7 lb-ft)



- Inspection

1. Check the bushing for wear and deterioration.
2. Check the rear lower arm for deformation.
3. Check the coil spring and spring pad for deterioration and deformation.
4. Check for all bolts and nut.

- Installation

1. Install in the reverse order of removal.
2. Check the alignment.
   (Refer to Suspension System - "Alingment")

- Removal

⚠ CAUTION

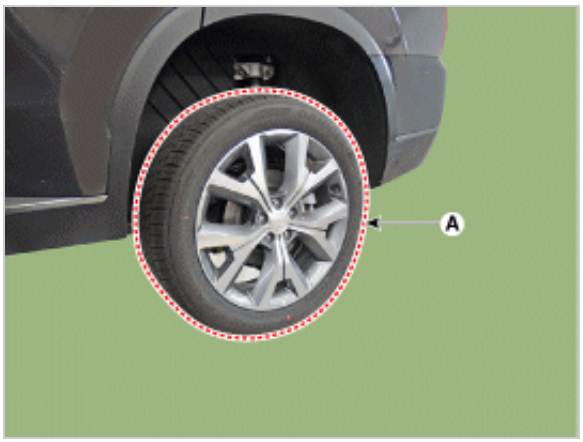
- Be careful not to damage the parts located under the vehicle (floor under cover, fuel filter, fuel tank and canister) when raising the vehicle using the lift.
  (Refer to General Information - "Lift and Support Points")

1. Loosen the wheel nuts slightly.
   Raise the vehicle, and make sure it is securely supported.
2. Remove the rear wheel and tire (A) from rear hub.

Tightening torque :
107.9 - 127.5 N.m (11.0 - 13.0 kgf.m, 79.6 - 94.0 lb-ft)

NOTICE

- Be careful not to damage the hub bolts when removing the rear wheel and tire (A).

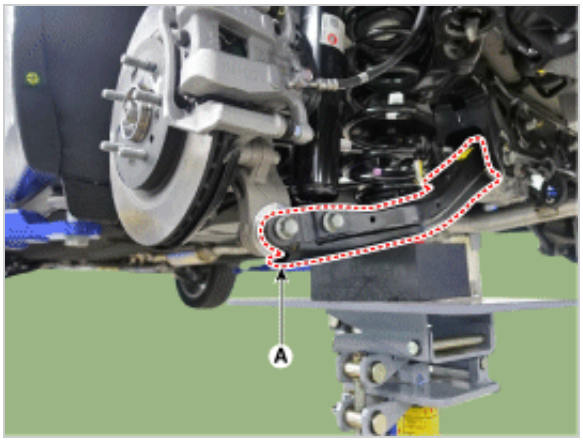


3. Loosen the bolt & nut and then remove the rear lower arm (A) from the rear axle.

Tightening torque :
137.3 - 156.9 N.m (14.0 - 16.0 kgf.m, 101.3 - 115.7 lb-ft)

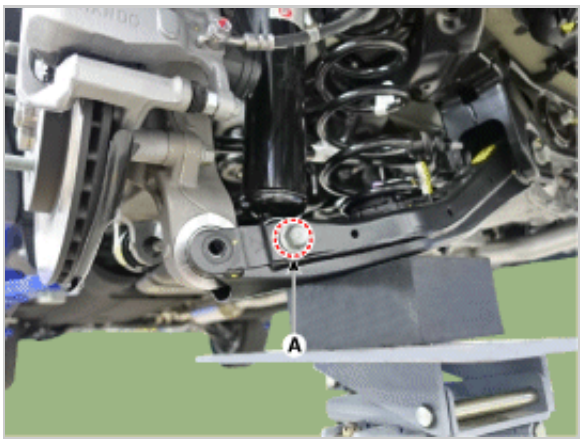
NOTICE

- Set up the transmission jack under the lower arm in order to remove it in no-load condition.



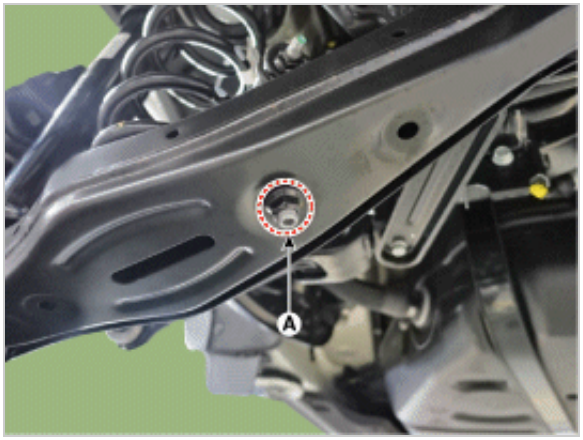
4. Loosen the bolt & nut (A) and then disconnect the rear shock absorber from the lower arm.

Tightening torque :
137.3 - 156.9 N.m (14.0 - 16.0 kgf.m, 101.3 - 115.7 lb-ft)

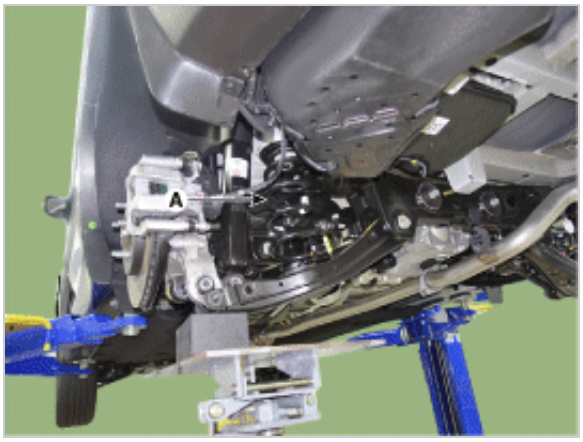


5. Loosen the nut (A) and then disconnect the stabilizer bar link from the lower arm.

Tightening torque:
98.0 - 117.6 N.m (10.0 - 12.0 kgf.m, 72.3 - 86.7 lb-ft)



6. Remove the coil spring (A).



- Inspection

1. Check the spring for distortion, aging or damage.
2. Check the spring upper pad and lower pad for aging or damage.

- Installation

1. Install in the reverse order of removal.
2. Check the alignment.
   (Refer to Suspension System - "Alingment")

- Removal

⚠ CAUTION

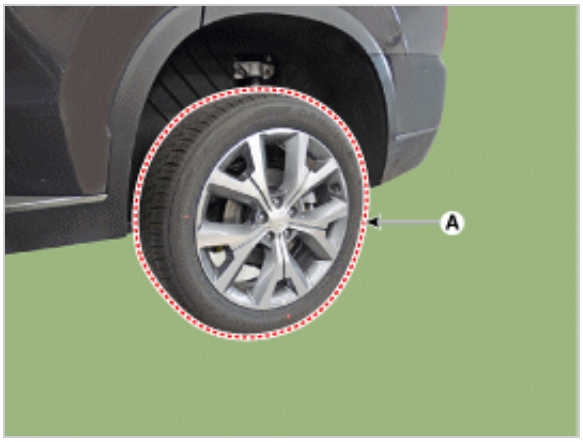
- Be careful not to damage the parts located under the vehicle (floor under cover, fuel filter, fuel tank and canister) when raising the vehicle using the lift.
  (Refer to General Information - "Lift and Support Points")

1. Loosen the wheel nuts slightly.
   Raise the vehicle, and make sure it is securely supported.
2. Remove the rear wheel and tire (A) from rear hub.

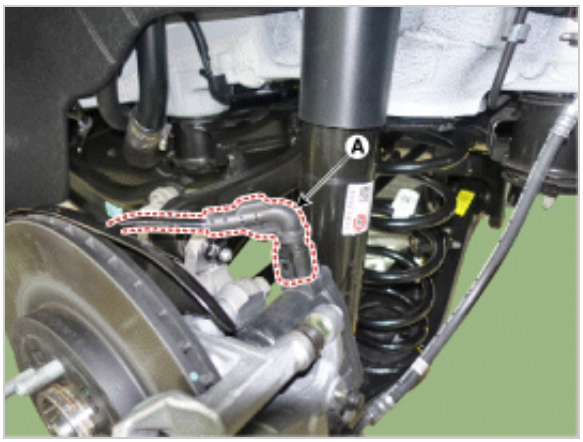
Tightening torque :
107.9 - 127.5 N.m (11.0 - 13.0 kgf.m, 79.6 - 94.0 lb-ft)

NOTICE

- Be careful not to damage the hub bolts when removing the rear wheel and tire (A).



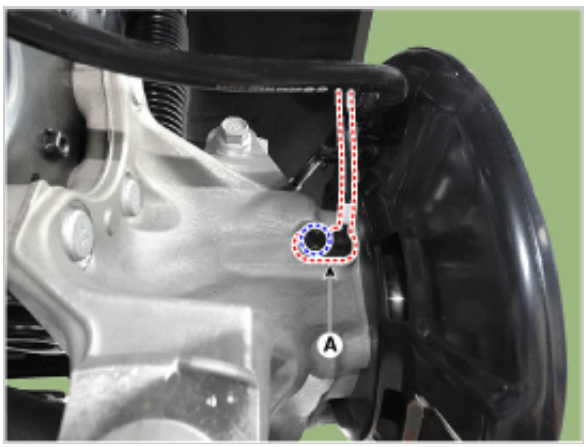
3. Disconnect the EPB connector (A).



4. Loosen the bolt (A) and then remove the rear wheel speed sensor.

Tightening torque :

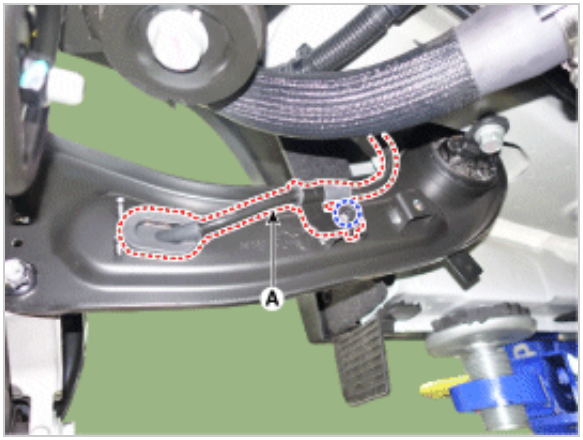
6.9 - 10.8 N.m (0.7 - 1.1 kgf.m, 5.1 - 8.0 lb-ft)



5. Loosen the bolt and then remove the rear wheel speed cable (A).

Tightening torque :

9.8 - 16.7 N.m (1.0 - 1.7 kgf.m, 7.2 - 12.3 lb-ft)



6. Loosen the nut (A) and then disconnect the trailing arm from the rear axle.

Tightening torque:
98.0 - 117.6 N.m (10.0 - 12.0 kgf.m, 72.3 - 86.7 lb-ft)

NOTICE

- Set up the transmission jack under the lower arm in order to remove it in no-load condition.

7. Loosen the bolt (A) and then remove the trailing arm.

Tightening torque :
98.1 - 117.7 N.m (10.0 - 12.0 kgf.m, 72.3 - 86.8 lb-ft)

- Inspection

1. Check the bushing for wear and deterioration.

2. Check for all bolts and nuts.

- Installation

1. Install in the reverse order of removal.
2. Check the alignment.
   (Refer to Suspension System - "Alingment")

- Removal

⚠ CAUTION

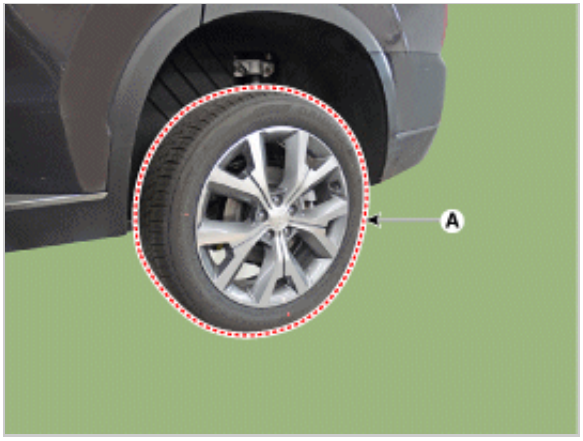
- Be careful not to damage the parts located under the vehicle (floor under cover, fuel filter, fuel tank and canister) when raising the vehicle using the lift.
  (Refer to General Information - "Lift and Support Points")

1. Loosen the wheel nuts slightly.
   Raise the vehicle, and make sure it is securely supported.
2. Remove the rear wheel and tire (A) from rear hub.

Tightening torque :
107.9 - 127.5 N.m (11.0 - 13.0 kgf.m, 79.6 - 94.0 lb-ft)

NOTICE

- Be careful not to damage the hub bolts when removing the rear wheel and tire (A).



3. Loosen the bolt & nut and then remove the rear assist arm (A).

Tightening torque :
137.3 - 156.9 N.m (14.0 - 16.0 kgf.m, 101.3 - 115.7 lb-ft)

NOTICE

- Set up the transmission jack under the lower arm in order to remove it in no-load condition.

Click to see large image...

- Inspection

1. Check the bushing for wear and deterioration.
2. Check for all bolts and nuts.

- Installation

1. Install in the reverse order of removal.
2. Check the alignment.
   (Refer to Suspension System - "Alingment")

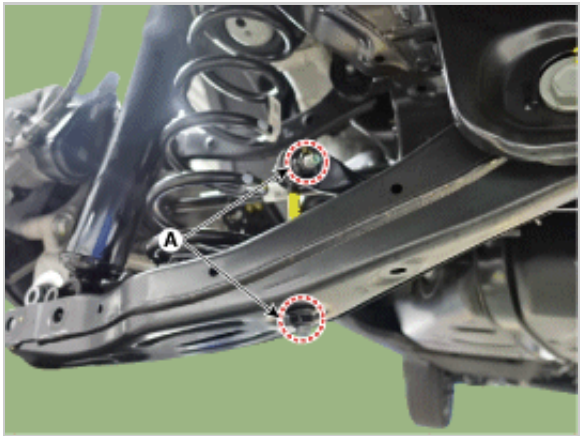
- Removal

CAUTION

- Be careful not to damage the parts located under the vehicle (floor under cover, fuel filter, fuel tank and canister) when raising the vehicle using the lift.
  (Refer to General Information - "Lift and Support Points")

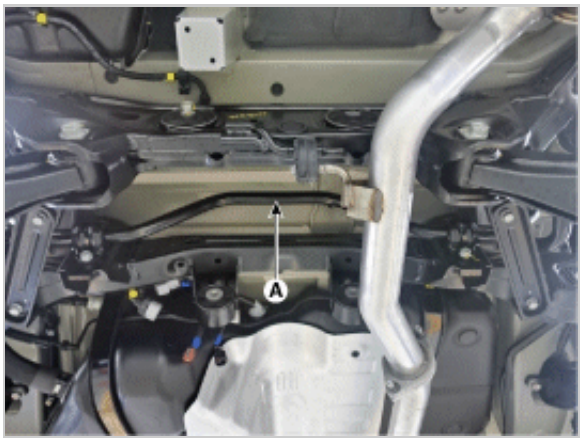
1. Raise the vehicle, and make sure it is securely supported.
2. In the case of 4WD vehicle, remove the rear differential assembly.
   (Refer to Driveshaft and axle - "Rear Differential Carrier")
3. Loosen the nut (A) and then remove the stabilizer link.

Tightening torque :
98.0 - 117.6 N.m (10.0 - 12.0 kgf.m, 72.3 - 86.7 lb-ft)



4. Remove the stabilizer bar (A).

Tightening torque :
44.1 - 53.9 N.m (4.5 - 5.5 kgf.m, 32.5 - 39.8 lb-ft)



- Inspection

1. Check the rear stabilizer bar for deformation.
2. Check the rear stabilizer link ball joint for damage.

- Installation

1. Install in the reverse order of removal.

- Removal

⚠ CAUTION

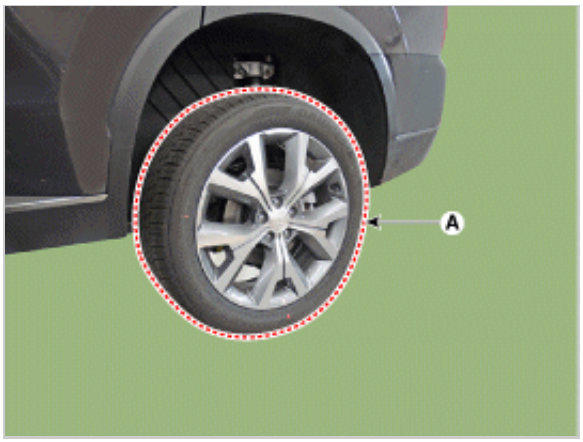
- Be careful not to damage the parts located under the vehicle (floor under cover, fuel filter, fuel tank and canister) when raising the vehicle using the lift.
  (Refer to General Information - "Lift and Support Points")

1. Loosen the wheel nuts slightly.
   Raise the vehicle, and make sure it is securely supported.
2. Remove the rear wheel and tire (A) from rear hub.

Tightening torque :
107.9 - 127.5 N.m (11.0 - 13.0 kgf.m, 79.6 - 94.0 lb-ft)

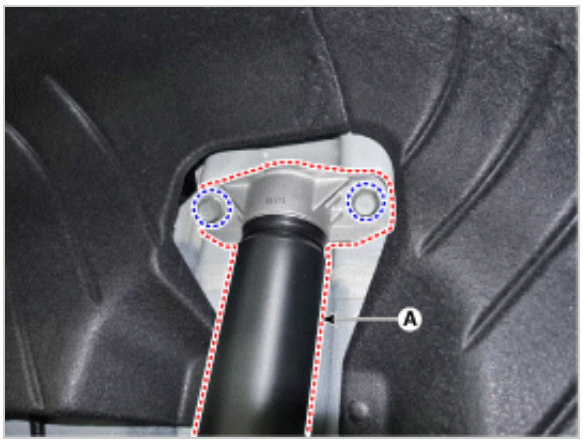
NOTICE

- Be careful not to damage the hub bolts when removing the rear wheel and tire (A).



3. Remove the rear brake caliper.
   (Refer to Brake System - "Rear Disc Brake")
4. Remove the rear hub carrier.
   (Refer to Driveshaft and axle - "Rear Hub -Carrier")
5. In the case of 4WD vehicle, remove the rear differential assembly.
   (Refer to Driveshaft and axle - "Rear Differential Carrier")
6. Remvoe the trailing arm.
   (Refer to Suspension System - "Trailing Arm")
7. Remove the center muffler.
   (Refer to Engine Mechanical System - "Muffler")
8. Remove the rear shock absorber (A) from the body by loosening the bolt.

Tightening torque :
98.1 - 117.7 N.m (10.0 - 12.0 kgf.m, 72.3 - 86.8 lb-ft)



9. After setting a jack, loosen the bolts and then remove the rear cross member.

Tightening torque :
176.5 - 196 .1 N.m (18.0 - 20.0 kgf.m, 130.2 - 144.7 lb-ft)

- Inspection

1. Check the rear stabilizer bar for deformation.
2. Check the rear stabilizer link ball joint for damage.

- Installation

1. Install in the reverse order of removal.
2. Check the alignment.
   (Refer to Suspension System - "Alingment")

- Tire Wear

⚠ CAUTION

- Using tires and wheel other than the recommended sizes could cause unusual handling characteristics and poor vehicle control, resulting in a serious accident.

1. Measure the tread depth of the tires.

Tread depth [limit] :1.6 mm (0.0630 in.)

2. If the remaining tread depth (A) is less than the limit, replace the tire.

NOTICE

- When the tread depth of the tires is less than 1.6 mm(0.0630 in), the wear indicators (B) will appear.

Click to see large image...

Tire Rotation

Checking For Pull And Wander

If the steering pulls to one side, rotate the tires according to the following wheel rotation procedure.

1. Rotate the front right and front left tires, and perform a road test in order to confirm vehicle stability.

Click to see large image...

2. If the steering pulls to the opposite side, rotate the front and rear tires, and perform a road test again.

Click to see large image...

3. If the steering continues to pull to one side, rotate the front right and left tires again, and perform a road test.

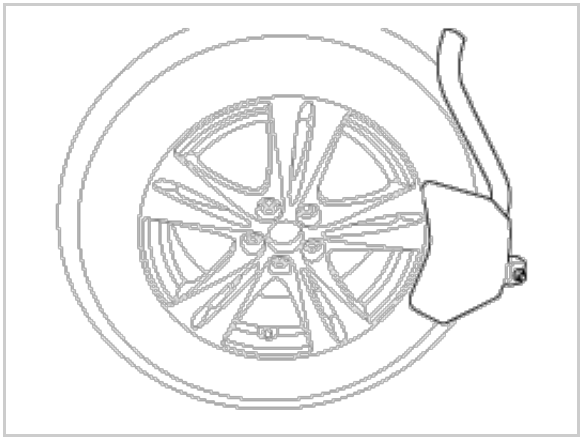
Click to see large image...

4. If the steering continues to pull to the opposite side, replace the front wheels with new ones.

Click to see large image...

- Removal

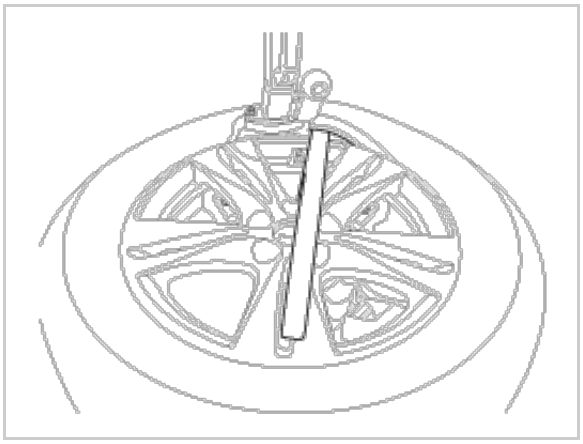
1. Remove valve core and deflate the tire.
2. Remove the side of the tire bead area from the wheel using tire changing machine .

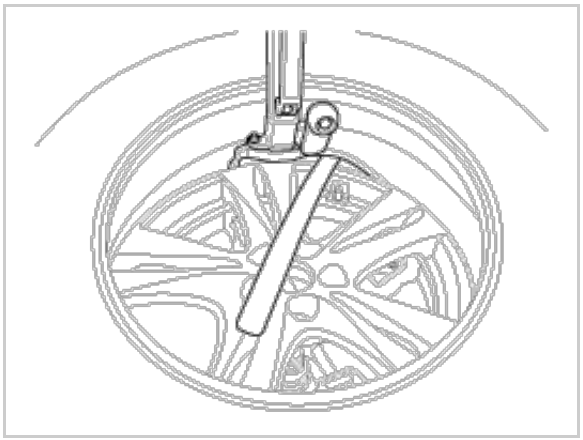


⚠ CAUTION

- The tire bead should be broken approx. 90° from the valve side of the wheel. The bead breaker should not be set too deep.
- Avoid tire/tool contact with the valve on dismount.
- Dismount should end near the valve.

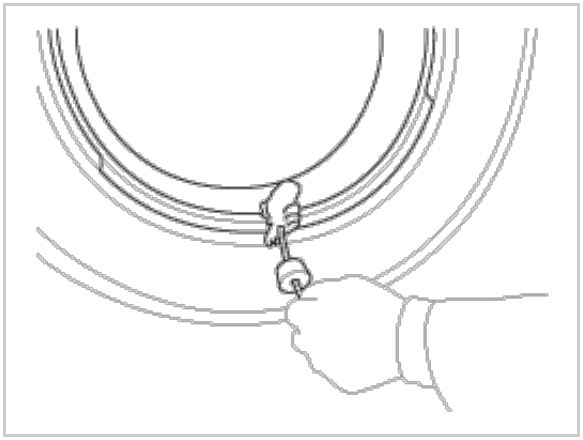
3. Rotate the wheel clockwise.



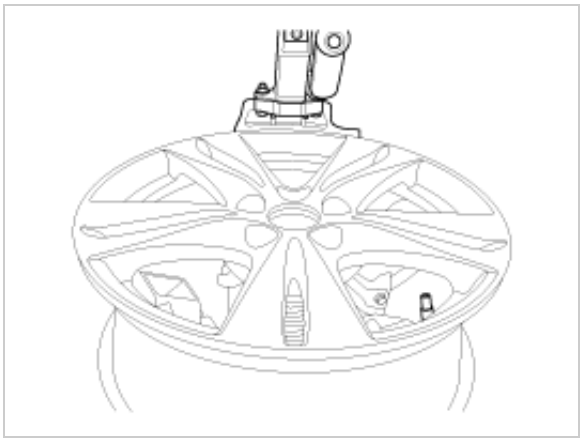


- Installation

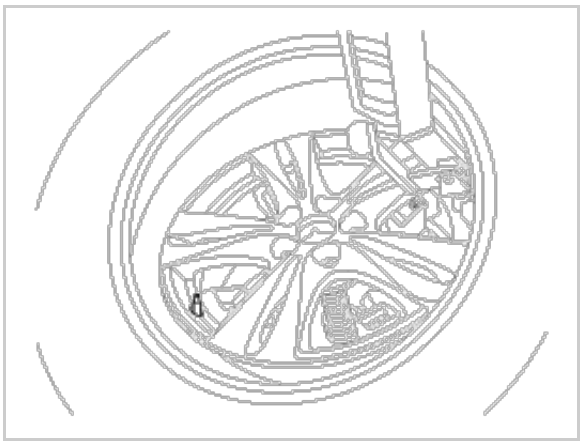
1. Apply tire soap or lubrication to the top and bottom tire beads.



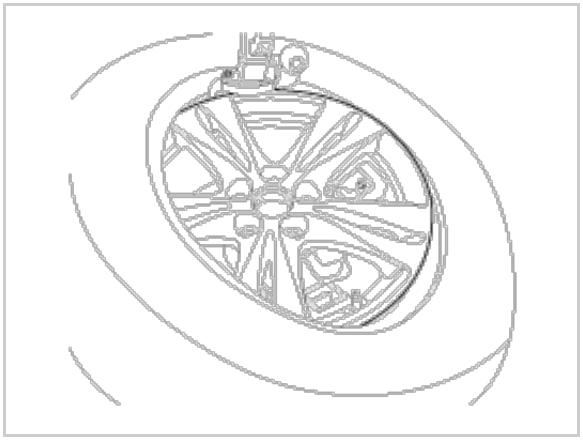
2. To fit the bottom bead, position the valve at the 5 o’clock position relative to the head on the tire changing machine.



3. Place the tire on the rim so the bottom bead touches the edge of the rim after the valve (6 o’clock). Rotate the rim clockwise, and push down on the tire at the 3 o’clock position to fit bottom bead.



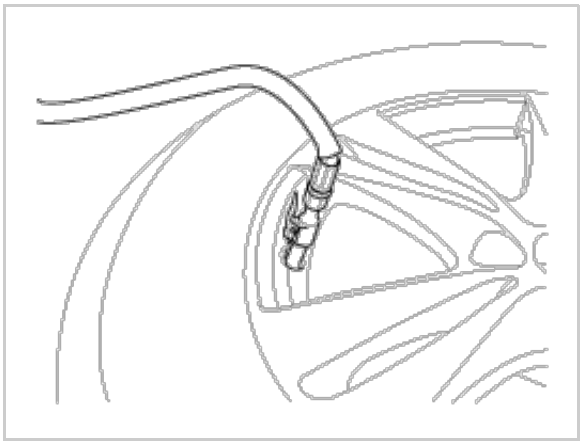
4. After bottom bead is on tire, rotate the rim until the valve is at the 5 o’clock position relative to the head on the tire changing machine. Push down on the tire at the 3 o’clock position and rotate the rim clockwise to fit the top bead.



5. Inflate the tire until both beads seat.

Recommended Tire pressure :

240 kPa (35psi)

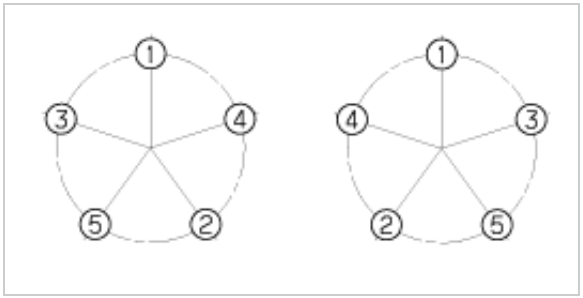


- Hub nut tightening sequence

1. Tighten the hub nuts as follows.

Tightening torque:

107.9 - 127.5 N.m (11.0 - 13.0 kgf.m, 79.6 - 94.0 lb-ft)



⚠ CAUTION

- When using an impact gun, final tightening torque should be checked using a torque wrench.

⚠ CAUTION

If the vehicle starts within 19 minutes after the replacement of the wheel of the stopped vehicle, the TPMS Malfunction Indicator on the instrument cluster illuminates.

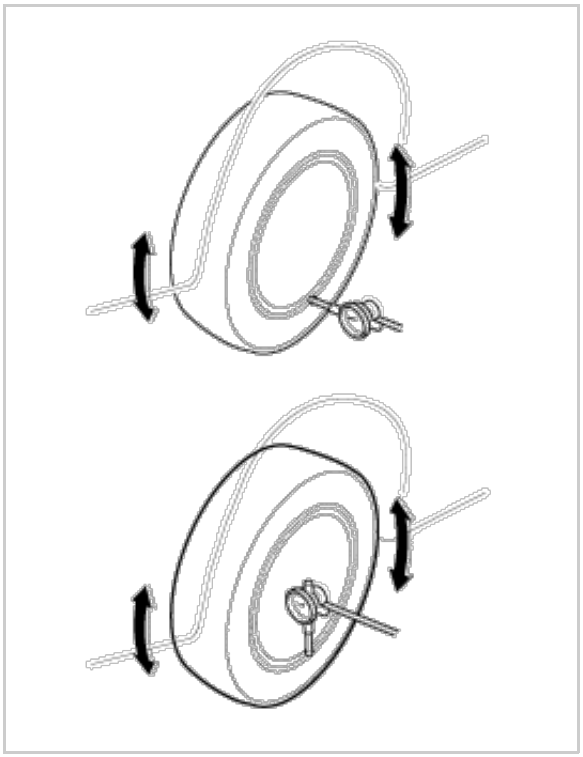
– The above symptom is due to communication failure between the BCM and the replaced TPMS ID.
– This communication failure indicator turns off in 19 minutes after the vehicle stops through the BCM's automatic learning process of TPMS ID.
(When driving the vehicle after stopping for over 19 minutes, the indicator turns off automatically.)

Run out inspection

1. Jack up the vehicle.
2. Measure the wheel Run-out by using a dial indicator as illustration below.

Run - out	Aluminum
Radial mm (in.)	Below 0.3 (0.0118)
Lateral mm (in.)	Below 0.3 (0.0118)

3. If measured value exceeds the standard value, replace the wheel.

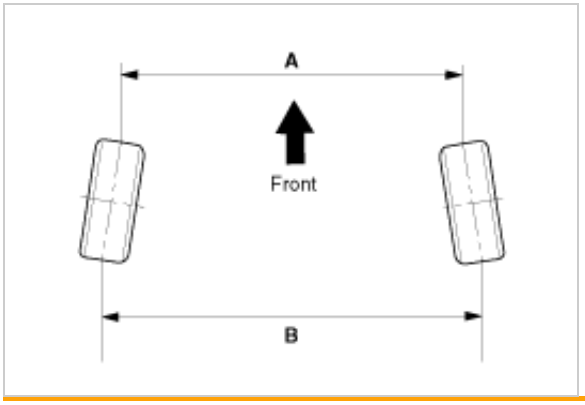


- Front Wheel Alignment

NOTICE

- When using a commercially available computerized wheel alignment equipment to inspect the front wheel alignment, always position the vehicle on a level surface with the front wheels facing straight ahead.
- Prior to inspection, make sure that the front suspension and steering system are in normal operating condition and that the tires are inflated to the specified pressure.

Toe



B - A > 0 : Toe in

B - A < 0 : Toe out

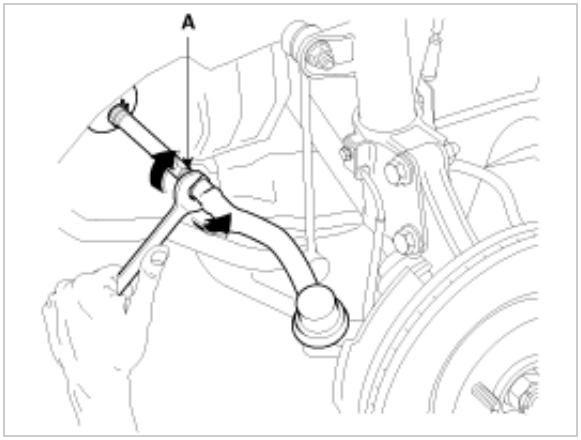
Toe Adjustment

1. Loosen the tie rod end lock nut.
2. Remove the bellows clip to prevent the bellows from being twisted.
3. Adjust the toe by screwing or unscrewing the tie rod. Toe adjustment should be made by turning the right and left tie rods by the same amount.

Toe

Total :0.1˚ ± 0.2˚

Individual :0.05˚ ± 0.1˚



4. When completing the toe adjustment, install the bellows clip and tighten the tie rod end lock nut to specified torque.

Tightening torque :

49.0 - 53.9 N.m (5.0 - 5.5 kgf.m, 36.2 - 39.8 lb-ft)

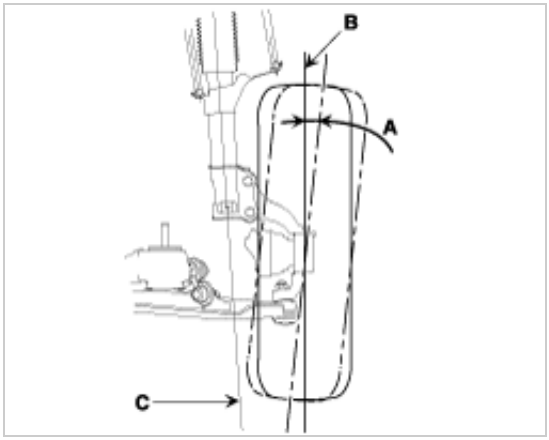
Camber

Camber :-0.5˚ ± 0.5˚

When the wheel tilts out at the top, then the camber is positive (+).

When the wheel tilts in at the top, then the camber is negative (-).

Camber and Caster are pre-set at the factory, so they do not need to be adjusted. If the camber and caster are not within the standard value, replace or repair the damaged parts and then inspect again.



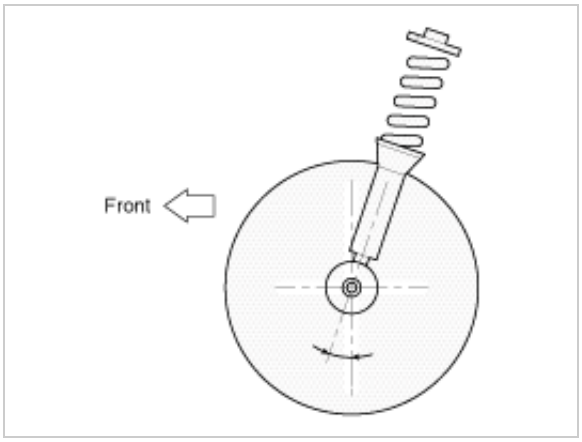
ITEM	Description
A	Positive camber angle
B	True vertical
C	Strut centerline

Caster

Caster is the tilting of the strut axis either forward or backward from vertical. A backward tilt is positive (+) and a forward tilt is negative (-).

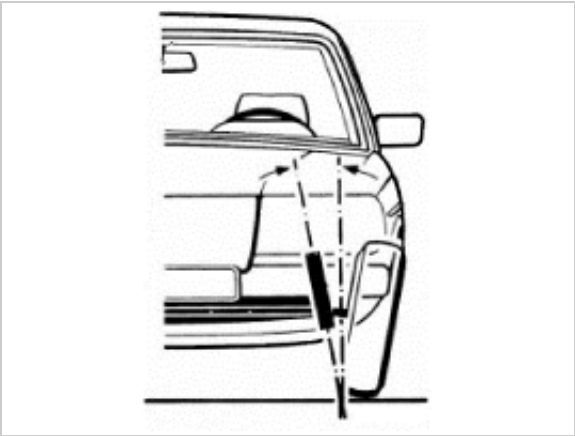
Caster is pre-set at the factory and doesn't need to be adjusted. If the caster is not within the standard value, replace the bent or damaged parts.

Caster :4.26˚ ± 0.5˚



King-pin angle

King-pin :13.33° ± 0.5°



NOTICE

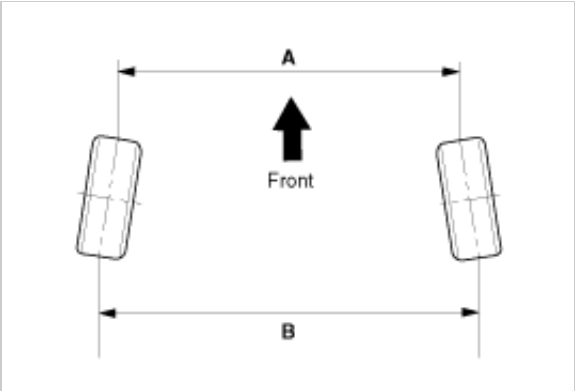
- The worn loose or damaged parts of the front suspension assembly must be replaced prior to measuring front wheel alignment.
- Caster are pre-set to the specified value at the factory and don't need to be adjusted.
- If the caster are not within specifications, replace bent or damaged parts.
- The difference of left and right wheels about the the caster must be within the range of 0° ± 0.5°.

- Rear Wheel Alignment

NOTICE

- When using a commercially available computerized wheel alignment equipment to inspect the rear wheel alignment, always position the vehicle on a level surface.
- Prior to inspection, make sure that the rear suspension system is in normal operating condition and that the tires are inflated to the specified pressure.

Toe



B - A > 0: Toe in (+)

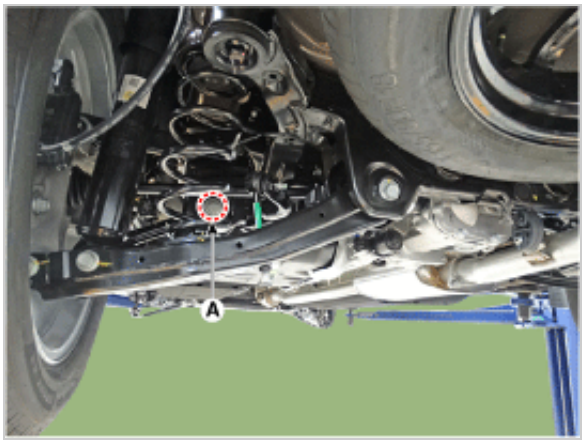
B - A < 0: Toe out (-)

Toe adjustment

1. Loosen the nut holding the assist arm cam bolt (A).
2. Adjust rear toe by turning the rear assist arm cam bolt (A) clockwise or counterclockwise. Toe adjustment should be made by turning the right and left cam bolt by the same amount.

Toe

Total :0.2˚ ± 0.2˚
Individual :0.1˚ ± 0.1˚



3. When completing the toe adjustment, tighten the nut to specified torque.

Tightening torque :
137.3 - 156.9 N.m (14.0 - 16.0 kgf.m, 101.3 - 115.7 lb-ft)

Camber

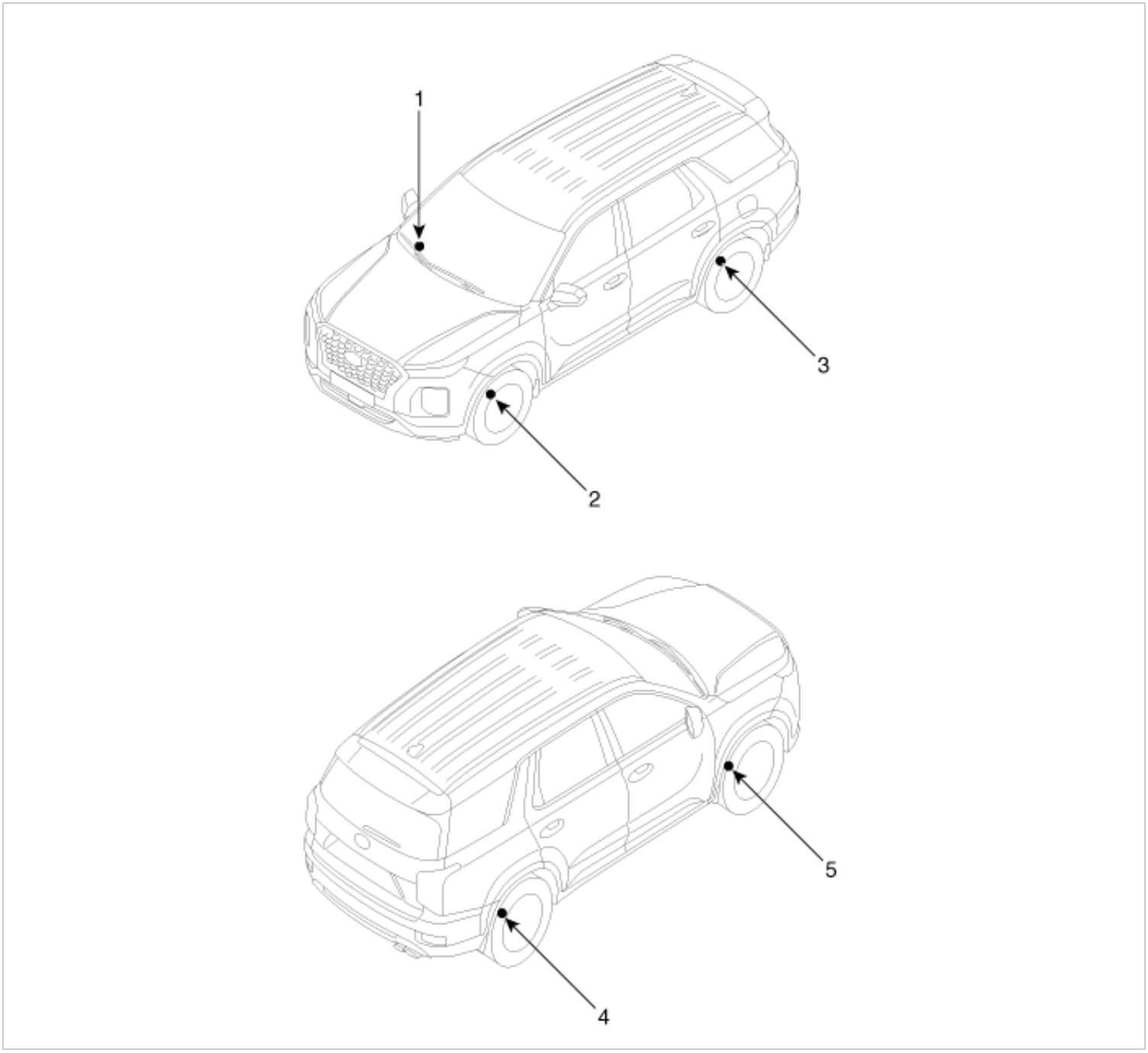
1. Loosen the nut holding the rear lower arm cam bolt (A).
2. Adjust rear camber by turning the rear lower arm cam bolt (A) clockwise or counter clockwise. Rear camber adjustment should be made by turning the right and left cam bolt by the same amount.

Camber angle :- 1.0˚ ± 0.5˚

3. When completing the toe adjustment, tighten the nut to specified torque.

Tightening torque :
137.3 - 156.9 N.m (14.0 - 16.0 kgf.m, 101.3 - 115.7 lb-ft)

- Components Location



1. Receiver
2. TPMS Sensor (FL)
3. TPMS Sensor (RL)
4. TPMS Sensor (RR)
5. TPMS Sensor (FR)

- Description

TREAD Lamp

– Tire Under Inflation / Leak Warning.

1. Turn on condition
   – When tire pressure is below allowed threshold
   – When rapid leak is detected by the sensor.
   – Indicates that tire needs to be re-inflated to placard pressure / repaired.
2. Turn off condition
   – Under-inflation ; When tire pressure is above (warning threshold + hysteresis).
   – Rapid Leak ; When tire pressure is above (leak warning threshold).

DTC Warning

1. Turn on condition
   – When the system detects a fault that is external to the receiver/ sensor.
   – When the system detects a receiver fault.
   – When the system detects a sensor fault.
2. Turn off condition
   – If the fault is considered as 'critical', then the lamp is held on throughout the current Ignition cycle (even if the DTC has been demoted). This is because it is important to bring the problem to the drivers attention. On the following Ignition cycle, the demotion conditions will be re-checked. If the demotion conditions occur, the lamp will be turned off. It will be held on until DTC demotion checking is completed.
   – 'Non critical' faults are those that can occur temporarily e.g. vehicle battery under voltage. The lamp is therefore turned off when the DTC demotion condition occurs.

⚠ CAUTION

If the vehicle starts within 19 minutes after the replacement of the wheel of the stopped vehicle, the TPMS Malfunction Indicator on the instrument cluster illuminates.

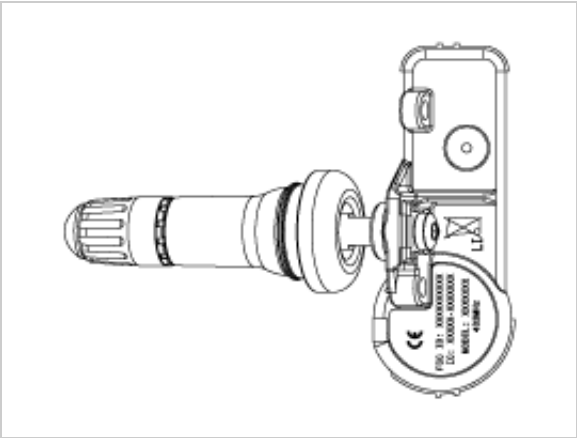
– The above symptom is due to communication failure between the BCM and the replaced TPMS ID.

– This communication failure indicator turns off in 19 minutes after the vehicle stops through the BCM’s automatic learning process of TPMS ID.
(When driving the vehicle after stopping for over 19 minutes, the indicator turns off automatically.)

System Fault

1. General Function
   – The system monitors a number of inputs across time in order to determine that a fault exists.
   – Faults are prioritized according to which has the most likely cause.
   – Maximum fault store is equal to 15.
   – Certain faults are not covered through DTC. The main ones are :
     a. Sensor thermal shutdown (over 257 °F/ 125 °C).
     b. Ignition Line stuck ; requires observation of lamps at Ignition ON to diagnose.

- Description



1. General description

   WU is a sensor placed in the tire that reports pressure and temperature.

   The WU is mounted inside the wheels, fixed to the valve. The angle between the valve and the housing of the WU is variable.

   This allows adaptation to various types of rims.

   The Wheel Unit is made of a PCB supporting the electronic hardware and encapsulated inside a housing which is potted with polyurethane.

   It is self-powered by a battery and includes all systems for parameter measurement (pressure, temperature and centrifugal acceleration and optionally rotation direction), RF transmission and LF detection.

   To achieve the specified battery lifetime, the WU supports various measurement and transmission timings, depending on WU operation mode.

   For RF transmission, WU uses an internal antenna.

2. First Block Mode

   : When vehicle start driving, Sensor enter Mode First Block.

   Typical period of RF emissions is 16 sec. for 40 times for Auto-learning and Auto-location function.

3. Driving Mode

   : After 19 min. parking and then finishing Mode First Block mode, WU enter Driving mode.

   Typical period of RF emissions are 64 sec above 4g vehicle speed.

4. Parking Mode

   : at below 3g Vehicle speed, enter Parking mode.

   Typical periodicities of RF emissions are 13 hours.

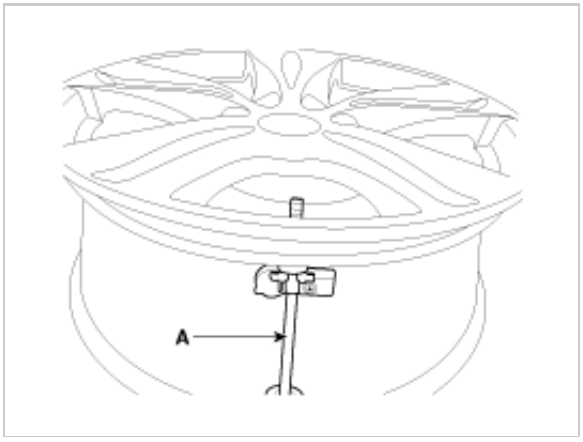
- Replacement

1. Remove the valve core and deflate the tire.Remove the tire.
2. Push the tire as illustration below by using tire change machine.

3. Remove the screw with torx driver (A).

NOTICE

- When installing the bead brake, make sure that it does not come in contact with the TPMS sensor.
- Be careful not to damage the TPMS sensor when installing the bead brake near the TPMS sensor.



4. Remove the sensor body (A) from the valve (B) in the direction of the arrow.

Click to see large image...

5. Remove the valve using the valve mounting tool.
   (1) Cut the rubber at the bottom of valve with a knife.

Click to see large image...

(2) Use the valve mounting tool to pull out the valve until it is entirely out of the lower hole.

Click to see large image...

6. Apply lubricant to the surface of the valve, and then mount it through the valve hole of the wheel.

NOTICE

- We recommend using regular soapy water as lubricant.

Click to see large image...

NOTICE

- The TPMS sensor valve bottom is not properly sealed if it is not fully mounted on the wheel, as shown in the following figure:

Click to see large image...

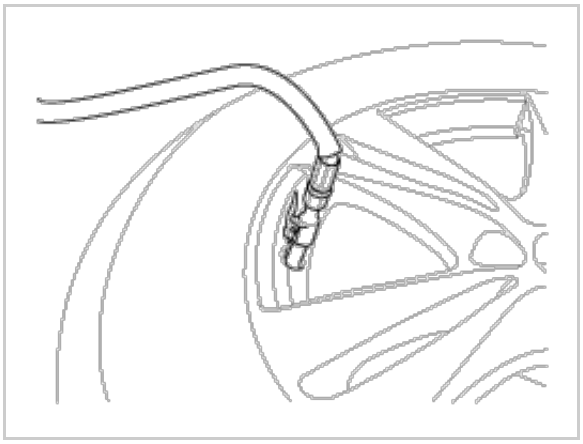
- Make sure that the valve body is pulled entirely through the hole.

Click to see large image...

7. Remove the tire change machine.

8. Inject air into the tire until the beads are in the correct position.

Tire pressure :240 kPa (35psi)



- Diagnostic Procedure Using a Diagnostic Instrument

The following section describes how to diagnose faults using a diagnostic instrument.

1. Connect the diagnostic instrument to the self-diagnostic connector (16-pin) beneath the crash pad on the side of driver's seat, and then turn on the ignition to activate the diagnostic instrument.
2. In the GDS Vehicle Type Selection menu, select "Vehicle Type" and "TPMS" System, and then opt for "OK."

[Register Sensor Method]

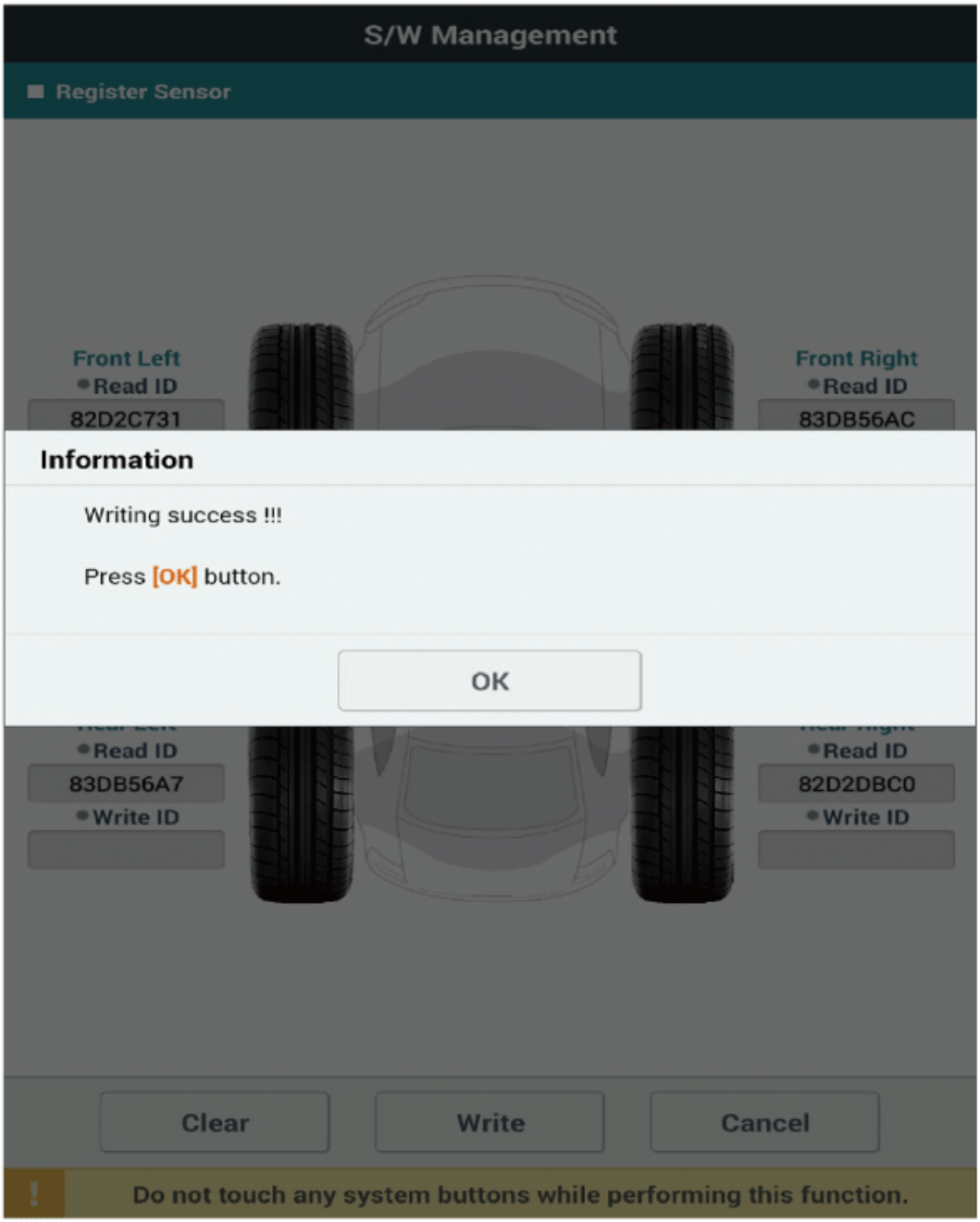
Click to see large image...

Click to see large image...

Click to see large image...

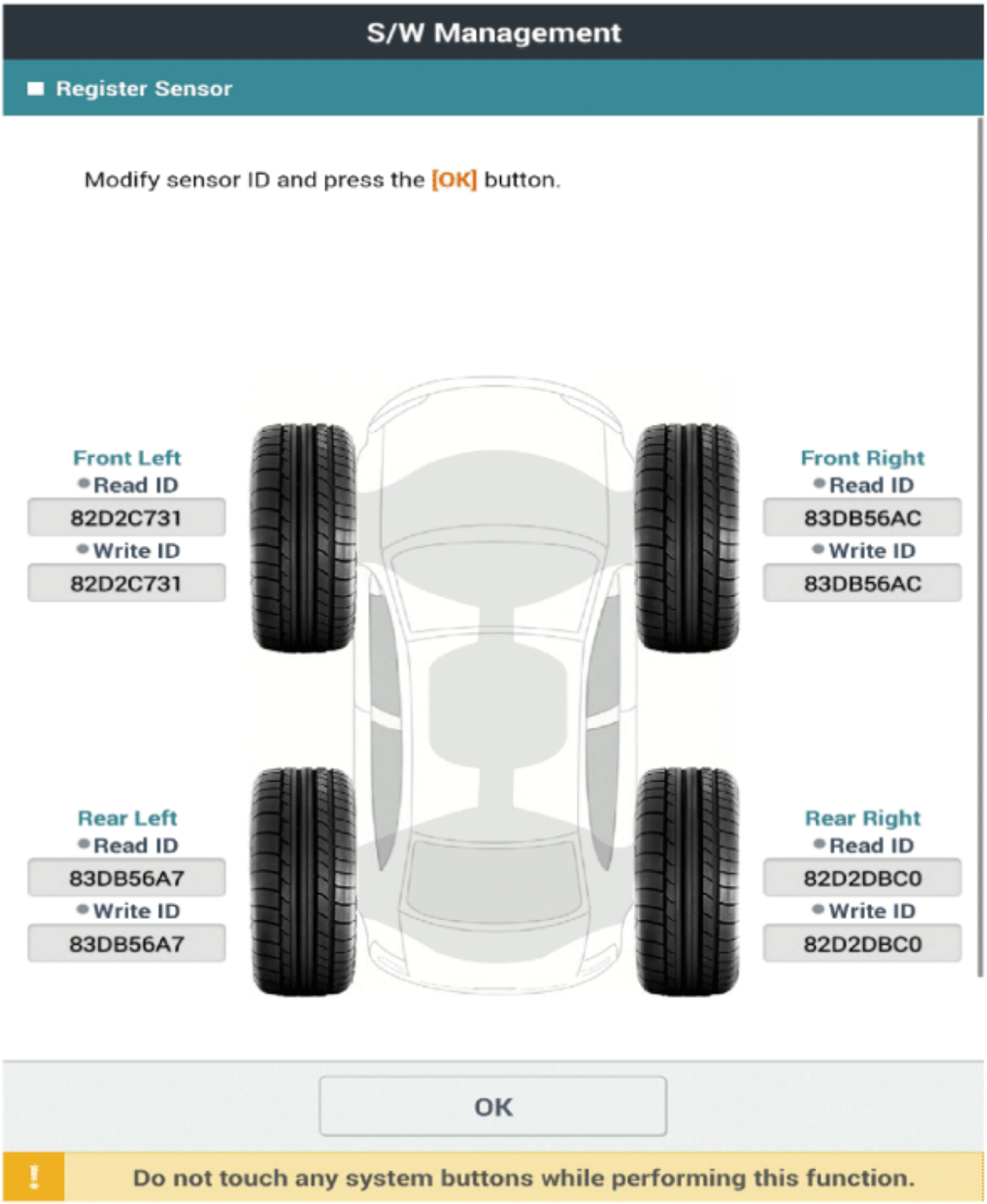
Click to see large image...

Click to see large image...



NOTICE

- Check that Write ID and Read ID are the match.
- After successfully registering the sensor, perform "Sensor Wireless Information" to confirm that the sensor operates properly.



[Sensor Status Method]

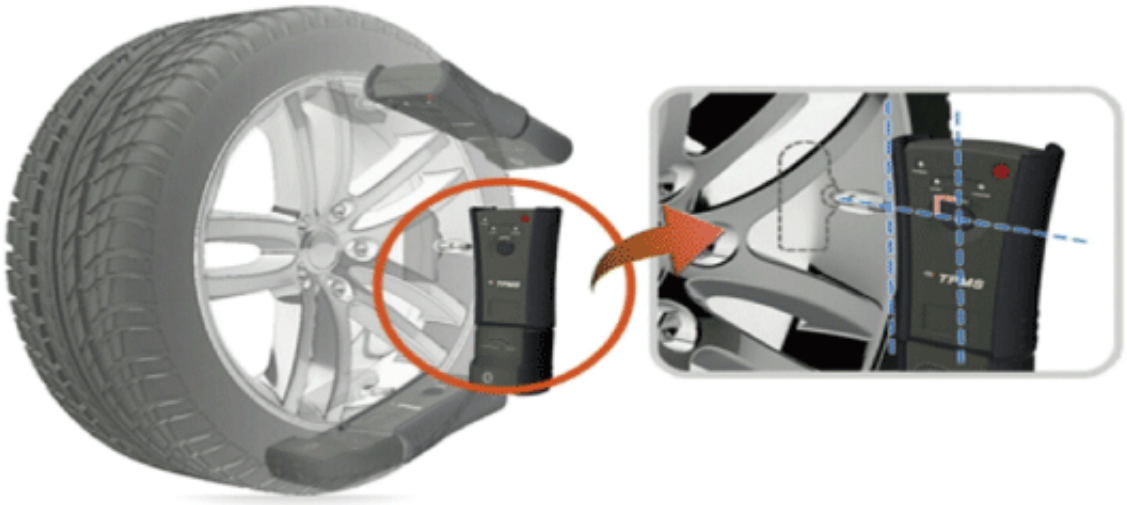
Click to see large image...

Click to see large image...

Click to see large image...

S/W Management

■ Sensor Status



⚠[Caution]

For most accurate reading and retrieval of correct sensor data, follow the guide below.

1. Place the [Enter] button of the TPMS Diagnosis Module in line with the TPMS sensor(Valve stem) of the wheel as shown in the image.

2. Position the TPMS Diagnosis Module as near as possible to the tire.

3. Reading may take 30~60 seconds depending on the sensor's characteristics.

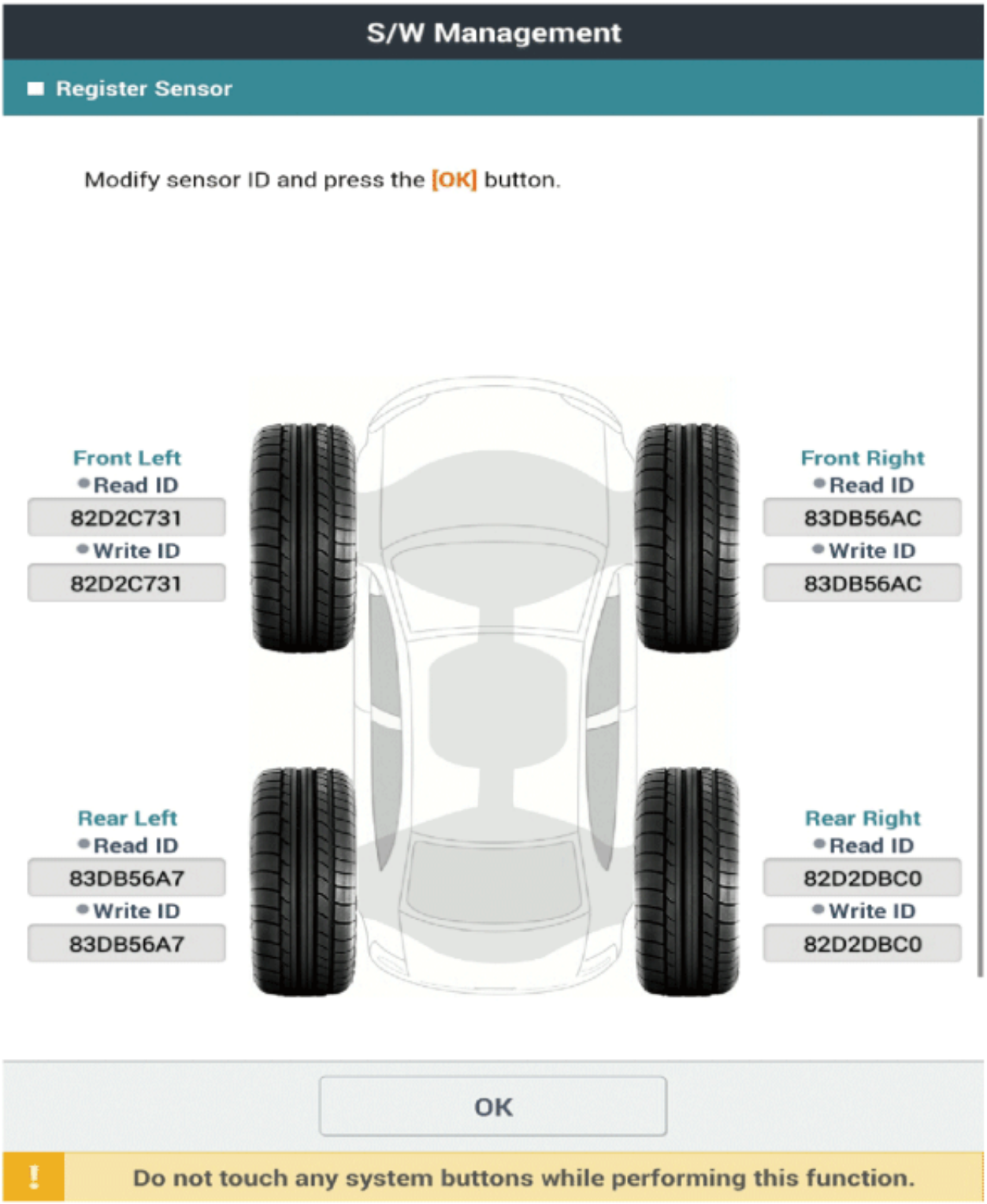
OK

! Do not touch any system buttons while performing this function.

Click to see large image...

NOTICE

- Each entry must be checked for normal operation of each sensor.
- After replacing the tires or sensors, check for proper operation of sensor after sensor registration process.



- Description

TPMS Receiver : BCM(body control module) integrated management

Click to see large image...

1. Mode
   (1) Virgin State
      - The receiver as a sole part is shipped in this state. Replacement parts should therefore arrive in this state.
      - In this state, there is no Auto-Location, no sensor wake-up, no sensor monitoring and no DTC monitoring..
      - The state indicates that platform specific parameters must be written to the receiver and that sensors are un-learned.

   (2) Normal State
      - In order for tire inflation state and DTC monitoring to occur, the receiver must be in this state.
      - In this state, automatic sensor location / learning is enabled.

2. Overview
   - Learn TPMS sensor for under inflation monitoring automatically.
   - Uses sensor information, distance travelled, background noise levels, Auto-learn status, short / open circuit output status, vehicle battery level, internal receiver states to determine if there is a system or a vehicle fault.

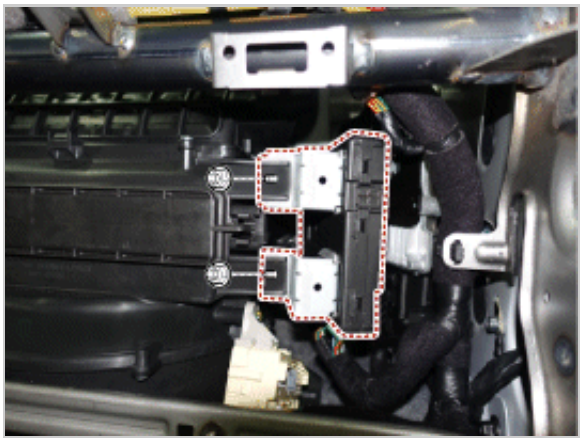
- Operation

1. General Function
   - Auto-learn takes place only once per Ignition cycle.
   - On successful completion, 4 road wheel sensor ID's are latched into memory for monitoring.
   - Until Auto-learn completes, previously learned sensors are monitored for under inflation / leak warnings.
2. General Conditions to Learn New Sensors:
   - Receiver must determine that it is confident that sensor is not temporary:
     a. Uses vehicle speed.
     b. Uses confidence reduction of previously learned sensors.
   - Typical time at driving continuously over 15.5 mph(25 kph) to learn a new sensor is up to 20 minutes.
3. General Conditions to Un-Learn a sensor that is removed :
   - It takes less than 20 minutes at 15.5 mph(20-30 kph).
   - Confidence reduction is dependent on time which vehicle is driven at speed greater than or equal to 12.4 mph(20-30 kph).

- Replacement

[TPMS Receiver (integrated Body control Unit (IBU))]

1. Turn the ignition switch OFF and disconnect the battery negative (-) cable.
2. Remove the glove box.
   (Refer to Body - "Glove Box")
3. Disconnect the body control module connectors (A) and then remove the integrated body control unit (B).



Click to see large image...

4. Install in the reverse order of removal.
5. After replacing the receiver, learn by using self-diagnostic device GDS.

- Diagnosis procedure by using diagnostic device

The main contents of diagnostic method using diagnostic device are as follows:

1. Connect self-diagnosis connector (16 pins) located in the lower driver side crash pad to self-diagnosis device, and then turn on the self-diagnosis device after key is ON.
2. Select the "vehicle model" and "TPMS" on GDS vehicle selection screen, then select OK.

[Vehicle Name Writing Method]

Click to see large image...

S/W Management

• **Vehicle Name Writing**

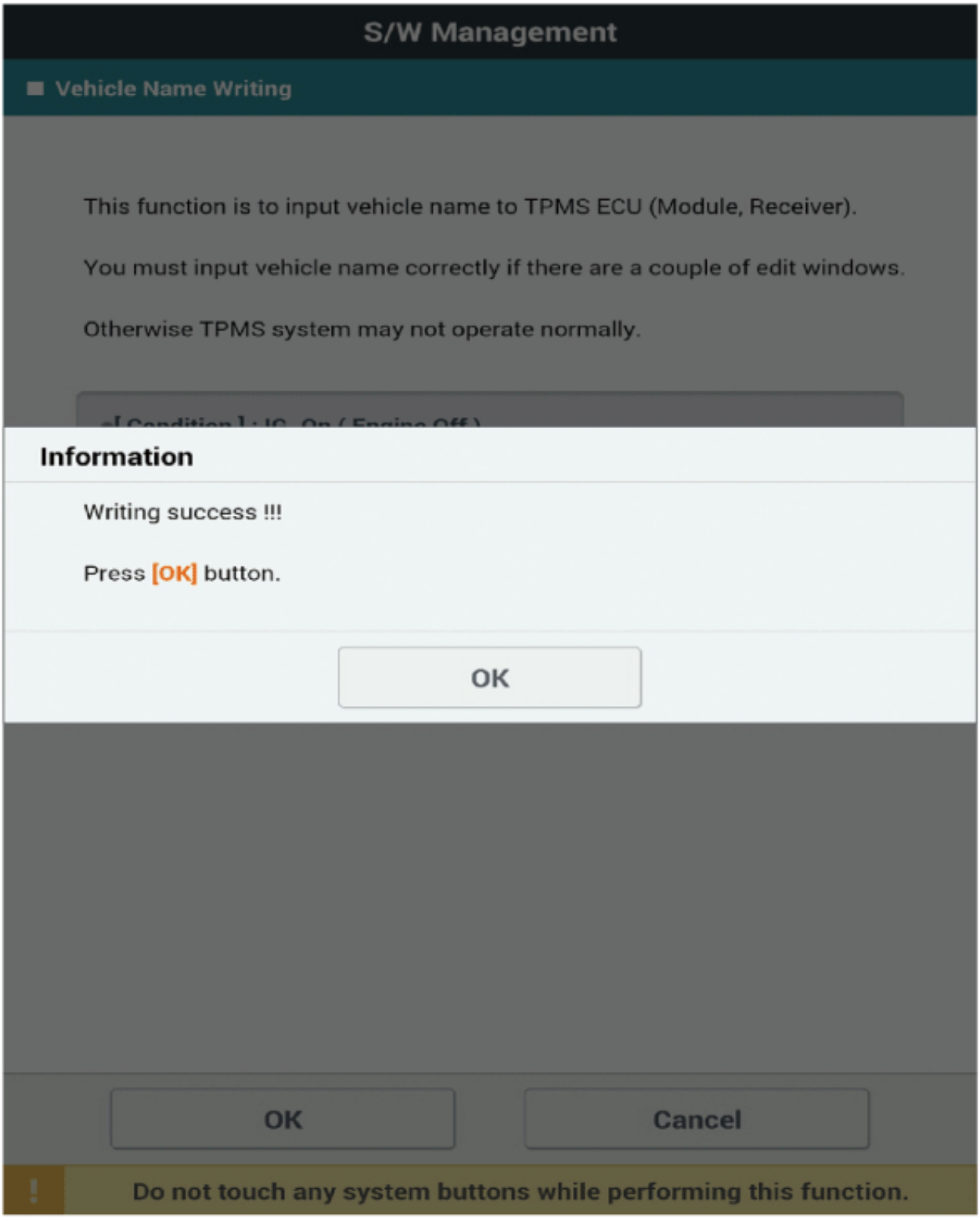
Purpose	To write vehicle name into Tire Pressure Monitoring System(TPMS) ECU.
Enable Condition	1.Engine Off 2.Ignition Switch On
Concerned Component	Tire Pressure Monitoring system(TPMS) ECU
Concerned DTC	-
Fail Safe	-
Etc	1.Vehicle name will be written automatically once VIN is read. Must input correct Vehicle name otherwise TPMS system will not operate properly. 2.In case of ECU replacement : 1) Write Vehicle Name 2) Change ECU mode to Normal 3) Write VIN 4) Write Sensor ID 5) Turn ignition "OFF" for about 10 sec. and "ON"

OK

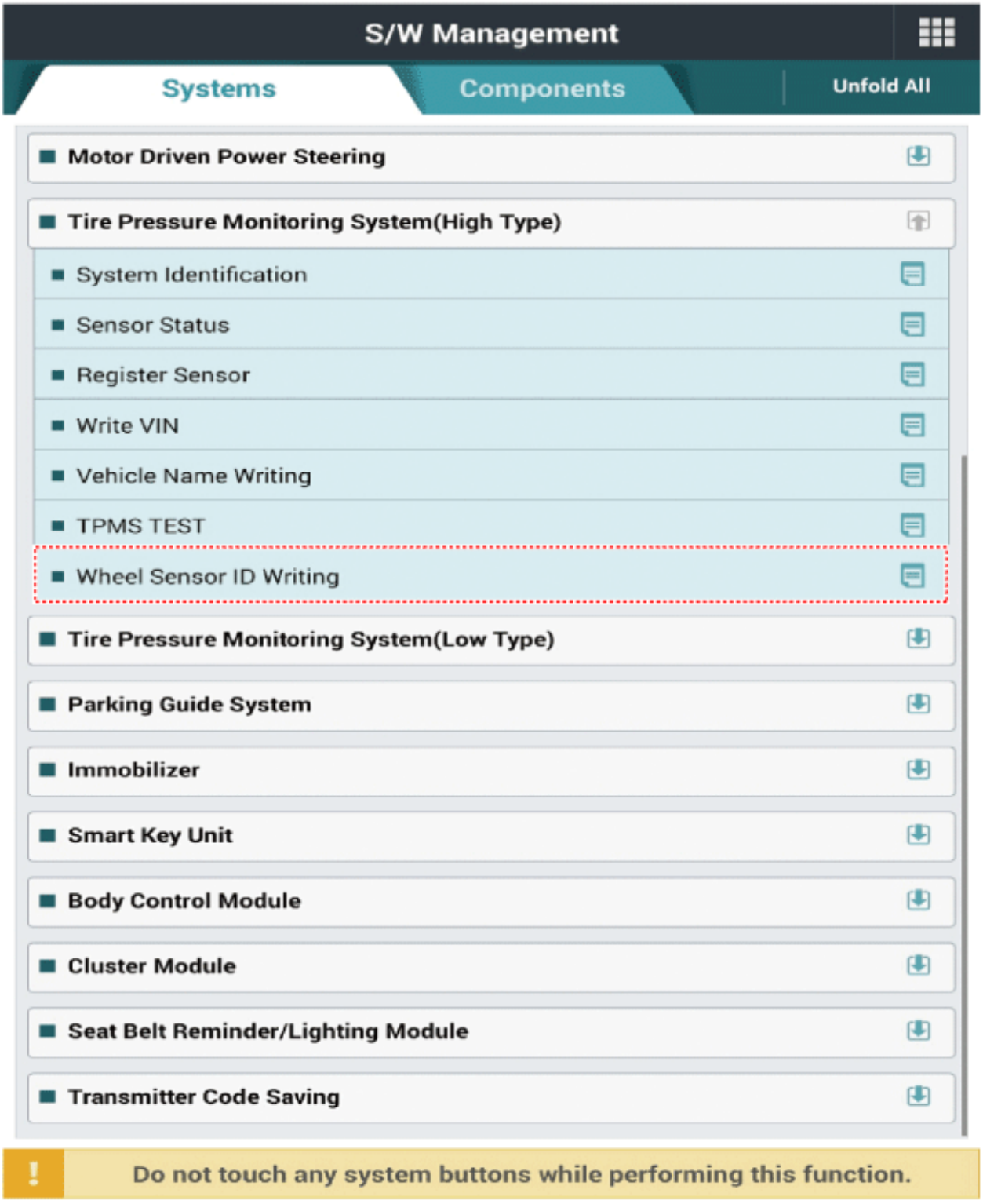
! Do not touch any system buttons while performing this function.

Click to see large image...

Click to see large image...


S/W Management
Vehicle Name Writing
This function is to input vehicle name to TPMS ECU (Module, Receiver).
You must input vehicle name correctly if there are a couple of edit windows.
Otherwise TPMS system may not operate normally.
Information
Writing success !!!
Press [OK] button.
OK
OK
Cancel
Do not touch any system buttons while performing this function.

[Wheel Sensor ID Writing Method]


S/W Management
Systems
Components
Unfold All
Motor Driven Power Steering
Tire Pressure Monitoring System(High Type)
System Identification
Sensor Status
Register Sensor
Write VIN
Vehicle Name Writing
TPMS TEST
Wheel Sensor ID Writing
Tire Pressure Monitoring System(Low Type)
Parking Guide System
Immobilizer
Smart Key Unit
Body Control Module
Cluster Module
Seat Belt Reminder/Lighting Module
Transmitter Code Saving
Do not touch any system buttons while performing this function.

S/W Management

• **Wheel Sensor ID Writing**

Purpose	To manually write Sensor ID into Tire Pressure Monitoring System(TPMS) ECU.
Enable Condition	1. Engine Off 2. Ignition Switch On 3. New 8 digits of sensor ID
Concerned Component	Tire Pressure Monitoring System(TPMS) ECU, Initiator, Tire Pressure Monitoring System(TPMS) Sensor
Concerned DTC	-
Fail Safe	-
Etc	This function is to read sensor ID from TPMS ECU and manually write changed sensor ID.

OK

! Do not touch any system buttons while performing this function.

S/W Management

■ Wheel Sensor ID Writing

1. This function is to input sensor ID to TPMS ECU (Module Receiver), which is used to operate the TPMS system properly.

2. Sensor ID is composed of 8 alphanumeric characters.

3. [Read ID] is current setting sensor ID, [Write ID] is new sensor ID.

[Condition] : IG. On (Engine Off)

Press the [OK] button.

OK Cancel

! Do not touch any system buttons while performing this function.

S/W Management

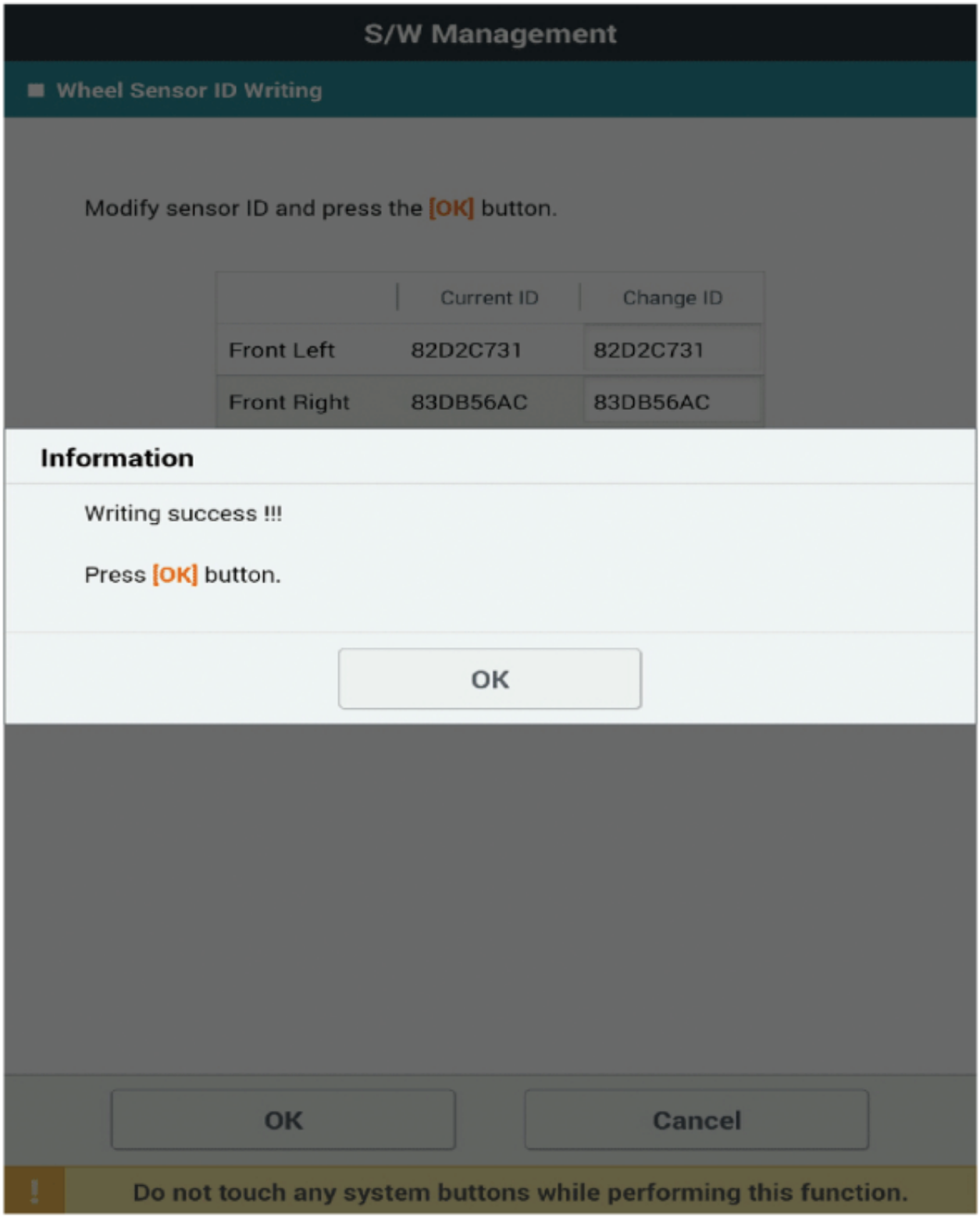
Wheel Sensor ID Writing

Modify sensor ID and press the [OK] button.

	Current ID	Change ID
Front Left	82D2C731	82D2C731
Front Right	83DB56AC	83DB56AC
Rear Right	82D2DBC0	82D2DBC0
Rear Left	83DB56A7	83DB56A7

OK Cancel

! Do not touch any system buttons while performing this function.


S/W Management
Wheel Sensor ID Writing
Modify sensor ID and press the [OK] button.
Current ID
Change ID
Front Left
82D2C731
82D2C731
Front Right
83DB56AC
83DB56AC
Information
Writing success !!!
Press [OK] button.
OK
OK
Cancel
Do not touch any system buttons while performing this function.